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A

DESCRIPTION
OF THE
MINERALS
IN THE
LESKEAN MUSEUM.

By DIETRICH LUDWIG GUSTAVUS KARSTEN, Jk.

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SOCIETY FOR PROMOTING THE SCIENCE OF MINING,
&c. &c. &c.

TRANSLATED

By GEORGE MITCHELL, M.B.

VOL. I.
CONTAINING THE
CHARACTERISTIC AND SYSTEMATIC
COLLECTIONS.

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DESCRIPTION

OF THE

MINERAL

COLLECTION

IN THE

LESKEAN MUSEUM

BY DR. LUDWIG GUSTAVUS HARTSTEN

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P R E F A C E.

AS the acquisition of the Leskean Museum will be a remarkable epoch in the Mineralogical History of these countries, it must interest the reader to be made acquainted with the grounds upon which this Collection challenges the respect and claims the confidence of all cultivators of that Science. The Institutor, from whom it derives its name, was Mr. Leske, Professor of Natural History at Marburg, one of the earliest and most distinguished pupils of the celebrated Mr. Werner, upon whose principles and with whose assistance it was arranged between the years 1782 and 1787. Upon the decease of Mr. Leske it was revised, enlarged and described by Mr. Karsten, also a disciple of Mr. Werner's, and who deservedly ranks next to him amongst the Mineralogists of Germany; to him we owe this Catalogue which was printed in 1789; since which period no Mineralogical work

of note has appeared upon the Continent in which it is not mentioned with approbation and confidently referred to; the Museum being offered for sale by the family of the deceased possessor, was sometime afterwards happily secured to this country by the meritorious exertions of some distinguished members of the Dublin Society.

Possessing such advantages from its first formation and subsequent revision by the most eminent Mineralogists in Germany, it was destined still to undergo a more rigorous examination from Mr. Kirwan; who by the most exact determination of the specific gravity of many of the specimens, and their fusibility in various degrees of heat ascertained by the assistance of Wedgwood's pyrometer, was enabled to point out new distinctions, establish additional characters and tests of substances nearly bordering on each other, and rectify some errors which too great confidence in the external characters had induced: thus the share it has had in contributing to the diffusion of more exact Mineralogical knowledge in these countries, by prompting Mr. Kirwan to favour the public with the present advanced state of this science on the Continent, ameliorated and augmented by his own extensive views
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and profound researches in all the branches of science in any manner connected with this department of Natural Knowledge, together with the frequent references to it in his invaluable work, must have excited a general wish to become acquainted with the source from whence an event so important has originated.

The Collection is divided into five separate parts, in conformity with the rules laid down by Mr. Werner in his masterly treatise *On the different sorts of Collections of which a complete Cabinet of Minerals ought to consist* *. The advantages to be derived from such a distribution and arrangement will from the following outline easily be seen and readily acknowledged.

As Mineralogy or the universal knowledge of Minerals may be resolved into several particular branches corresponding to particular points of view in which a Mineral may be considered, each of which constitutes a peculiar science which must be taught after a different method, it becomes requisite to appropriate a separate Collection to each science,

* Saml. zur Phys. und Naturgesch. 1 Band. 4 Stuk. 8. 388—430. 1772.

the arrangement of which must be conformable to the system of that science whose particular cultivation the Collection is intended to promote.

Now Mineralogy in general comprehends

I. The knowledge of the external characters of Minerals.

II. The knowledge of the classification of Minerals.

III. The knowledge of the Earth's internal structure.

IV. Mineralogical Geography.

V. Œconomical Mineralogy, and a complete Cabinet of Minerals should therefore consist of as many distinct Collections.

I. The Characteristic Collection, which being destined to convey the knowledge of the descriptive language employed in Mineralogy by exhibiting to the senses the characters described, serves for the study of those characters and furnishes the means of decision in cases where a character is doubtful. This Collection is placed first, because it is the first that is required in the study of Mineralogy; and the most perfect acquaintance with it is indispensably necessary to those who communicate descriptions of minerals to the public; it consists of 580 specimens and is marked K.

II. The

PREFACE

II. The Systematic Collection is that in which the more simple Minerals are arranged after their mutual relation of genera and species in a natural order, it occupies the second place amongst the several Collections, and serves for the study of the distinctive characters of each species of Mineral. In this Collection the articles are disposed in genera and species according to the nature and proportions of the ingredients in their composition, but the varieties of each species are disposed according to the external characters; thus in a species which is varied in some of its characters, the varieties which belong to a generical character, the colour or fracture for instance, are placed in the order of their mutual transitions into one another, and the generical characters themselves are placed in the same order as they succeed in the system of external characters. This Collection is the most important of all, and the study of it is alike indispensable to all those who are employed in the cultivation of Mineralogy in general or any of its branches in particular. It exhibits 3268 specimens, and being also termed the Oryctognostic Collection is marked O.

III. The third Collection is the Geological, in which the Minerals are arranged according to their position

position and relative situation in the internal structure of the Earth, and is appropriated to that branch of Mineralogy. This Collection therefore exhibits the different species of Rocks belonging to the primæval, marigenous, alluvial and volcanic countries, with their several varieties; these are accompanied by the Minerals which are most usually found in them; along with the marigenous Rocks lie those "medals of nature," the petrifications, of which this Collection is thought to contain one of the most perfect series extant; and lastly are placed some articles from which we are enabled to deduce such inferences as tend to explain the origin of veins and fissures. The whole consists of 1100 specimens, and is marked G.

IV. The fourth Collection is that in which Minerals are placed in a Geographical order; from this we may become acquainted with the mountains that occur in different countries, the Minerals which these mountains contain, and where and under what circumstances they are found. This Collection is therefore divided in a general manner after the different countries and their Geographical order, beginning with the more distant parts of the world, and proceeding in an orderly series

PREFACE.

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ries to the country in which the Collection was made. This, as may naturally be supposed, is remarkably rich in Saxon Minerals which are rendered still more interesting by references to the valuable works of Charpentier, Leske, and Voigt, in which they are more minutely described, it consists of 1909 specimens, and is marked S.

A Collection of this kind, from the great extent of its object must necessarily be imperfect; but it is expected that each Cabinet should present as complete a series of the Minerals of the country in which it is placed, as possible, for to the Mineralogists of that country its mineral productions are of much greater importance than those of any other part of the world. The Society will therefore doubtless hasten to supply the deficiency in this Collection as far as relates to Irish Minerals.

V. The fifth is the Œconomical Collection, in which the Minerals are arranged merely according to the different uses to which they are applied, a Collection of this kind is for the purpose of informing mankind what Fossils are useful in common life, and may on that account become proper objects of commerce, for what purpose also, and by

b

what

what artist each Mineral is employed, the degree of its consumption, the properties that are required to make it merchantable, the price it bears, and the countries that have hitherto produced it; hence the institution of an Œconomical Collection is calculated for the use of those who teach or study the doctrine of political oeconomy and finance: the utility of this Collection is much augmented by having the products of each Fossil and the preparations of each Mineral, in general laid contiguous to the substances in their natural state. This Collection exhibits 474 specimens, and is marked Œ.

The whole Collection contains 7331 specimens; is the only one known to be arranged on the foregoing improved plan, excepting that of the Mineralogical School at Freiberg, and that of Mr. Pabst Von Ohain; and has by high authority been pronounced, "one of the most perfect monuments of mineralogical ability now extant."

The Dublin Society, sensible of the advantages to be derived from the institution of a Museum under proper custody and regulations, by which the curiosity of the unlearned may be excited, and the

the researches of the scientific inquirer into nature assisted, has committed the Leskean Collection to the Care of Mr. William Higgins, their Professor of Chemistry and Mineralogy; deposited in a spacious and elegant apartment, it is open at stated times for the inspection of the curious in general, and always for the reception of Mineralogical Students, such will also have an opportunity of becoming acquainted with the principles of Chemistry under the instruction of the same able Master, who delivers a course of Lectures on that Science every Spring in an adjoining Elaboratory. The Society also with its usual attention to the advancement of Science for which it has ever been distinguished, has appropriated the annual sum of 100 guineas to be distributed in three prizes of unequal value to such of the Mineralogical Students as shall at an examination to be held before Mr. Kirwan, acquit themselves in a manner to merit his approbation: thus every inducement to the Mineralogical Student seems happily devised and liberally held out.

The Translator is conscious that his slender acquaintance with the original language of the work, joined with the difficulty of the subject, must have betrayed

betrayed him into many faults, he can only say in extenuation, first, that the language itself is purely technical, devised for and appropriated by the celebrated Werner to the explication of his system, consequently no assistance whatever could be derived from Dictionaries, and secondly, having engaged in the work at first solely with a view to his own improvement, it was afterwards thought advisable to make it public, as a translation was indispensably necessary for the Mineralogical Students, and no other person had been found willing or adventurous enough to attempt it; indeed such were the difficulties attendant upon the undertaking, that had he not been favoured with some assistance of a very superior nature he must have despaired of rendering it at all fit to meet the public eye.

I.

CHARACTERISTIC COLLECTION.

K.

B

CHARACTERISTIC COLLECTION

CHARACTERISTIC COLLECTION.

A. COMMON EXTERNAL GENERIC
CHARACTERS.

A. A. For the determination of Colours.

a. *Principal Colours and their Varieties.*1. *White.*

- 1 **PURE** *white* granular Lime-stone; from Carrara.
- 2 *Pure white* Calcareous Stalactite; from Saxony.
- 3 *Pure white* Lead Ore; from the Hartz.
- 4 *Pure white* Native Argill. from Halle.
- 5 *Reddish white* Porcelain-Clay; from Schneeberg.
- 6 *Reddish white* Stones dotted with red; from China.
- 7 *Reddish white* foliated Baroselenite; from Freiberg in Saxony.
- 8 *Reddish white* Felspar, *slightly inclining to Grey*, with Quartz; from the same place.
- 9 *Yellowish white* crystallized Lead Ore, in disintegrated ferruginous Argillite; from the Hartz.
- 10 *Yellowish white* Zeolyte; from Ferröe.
- 11 *Dark yellowish white* Amber; from Prussia.
- 12 *Silver white* superficial native Silver, on a Quartz matrix, intermixed with martial Pyrites; from Braunsdorf in Saxony.
- 13 *Silver white* Native Silver, *reflecting a little red*; from the Himmelsfürst near Freiberg.
- 14^a. *Somewhat darker* Native Silver; from Schneeberg.

- 14^b. Native Bismuth of an intermediate colour between Silver and Tin white; from the same place.
- 15 Silver white, strongly degenerating into Tin white, Arsenical Pyrites, with Blende, Copper Pyrites and much Quartz; from Freiberg.
- 16 Greenish white Steatites; from Bareuth.
- 17 Rather darker, greenish white Amianthus; from Portugal.
- 18 Greenish white Quartz, with martial Pyrites; from Freiberg.
- 19 Greyish white, somewhat inclining to yellowish, Calcareous Spar; from the Hartz.
- 20 Dark greyish white Rock Crystal; from Bohemia.
- 21 Milk white Calcedony in a Carnelian Spheroid; from the Palatinate.
- 22 Opal, rather more inclining to bluish; from Saxony.
- 23 Tin white Native Mercury, in a ferruginous mixture of Baroselenite and martial Pyrites, from Wolfstein in the Palatinate.
- 24 Tin white, somewhat inclining to Lead grey, Crystallized whitish grey Cobalt Ore; from Schneeberg.

2. Grey.

- 25 A fragment of Galena of a Lead grey colour, with Calcareous Spar; from Freiberg.
- 26 Lead grey Molybdena, in a Quartz matrix; from Altenberg in Saxony.
- 27 Somewhat fallow Lead grey Silver Ore, in a mixture of Galena, Sparry Iron Ore, Copper Pyrites, and red Silver Ore; from the Old Green Branch near Freiberg.
- 28 Bluish grey blue Lead Ore, with some Iron Ochre; from Tschopau in Saxony.
- 29 Bluish grey inclining to smoke grey, compact Lime Stone, slightly invested with Mica; from Saxony.
- 30 Pearl grey common quartz; from the Isaac near Freiberg.
- 31 Pearl grey fossil Sea Salt, rather more inclining to yellowish; from Halle in Tyrol.
- 32 Somewhat darker, Pearl grey Corneous Silver Ore, with much Iron Ochre and Quartz; from the Gotthelf Schaller at Johann Georgenstadt.

- 33 *Dark Pearl grey Porcellanite, somewhat inclining to the Lavender blue; from Bohemia.*
- 34 *Smoke grey indurated Marle; from Upper Lusatia.*
- 35 *Somewhat darker, Smoke grey Calcareous Spar, on Bituminous Marlite; from Thuringia.*
- 36 *Still darker, Smoke grey Clay; from Wehrau in Upper Lusatia.*
- 37 *Again, a little darker Smoke grey Flint, spotted with White; from the Leipzig Sand-pit.*
- 38 *Very dark Smoke grey, passing into blackish grey Flint; from England.*
- 39 *Reddish grey Felspar, with some Lithomarga and Talc, on Gneiss; from Saxony.*
- 40 *Greenish grey indurated Marle; from Upper Lusatia.*
- 41 *Yellowish grey Calcedony; from Ferröe.*
- 42 *Dark yellowish grey Argillaceous Iron Ore, spotted with brown; from Wehrau in Upper Lusatia.*
- 43 *Grey Copper Ore of a light Steel grey colour, in Calcareous Spar, intermixed with Quartz; from Gerstdorf near Freiberg.*
- 44 *Rather dark, Steel grey Specular Iron Ore, in Quartz; from Altenberg in Saxony.*
- 45 *Striated grey Ore of Antimony of a perfect Steel grey colour, mixed with the same of a lighter colour, in Quartz; from Braunsdorf near Freiberg.*
- 46 *Steel grey crystallized micaceous Iron Ore, with Iron Ochre; from Saxony.*
- 47 *Very dark Steel grey Ore of Manganese in Baroselenite; from Ilfeld in the Hartz.*
- 48 *Blackish grey Hornstone; from Schneeberg.*

3. Black.

- 49 *Greyish black Flint; from Lithuania.*
- 50 *Dark greyish black Basalt; from Upper Lusatia.*
- 51 *Greyish black, rather inclining to bluish, Argillite; from Bareuth.*
- 52 *Greenish black Serpentine; from Zöblitz in Saxony.*
- 53 *Greenish black Hornblende, with Quartz; from Saxony.*
- 54 *Brownish black, varying into the Pinckbeck brown, Mica; from Wermeland in Sweden.*

- 55 *Dark brownish black Sparry Iron Ore*; from Nassau Usingen.
- 56 *Somewhat dark brownish black Wolfram*, in an aggregate of Quartz, Arsenical Pyrites and some Lithomarga; from Altenberg.
- 57^a *Full dark brownish black crystallized Tin Ore*; from Zinnwald in Bohemia.
- 57^b *Perfectly dark black Obsidian*; from Iceland.
- 58 *Dark black Prismatic Schorl*; from Eibenstock in Saxony.
- 59 *Dark black Jet*, with a little Calcareous Spar.
- 60 *Rather lighter, dark black Blende*, with Arsenical and martial Pyrites, and also Quartz, on Gneiss; from the Klüschacht near Freiberg.
- 61 *A piece of Iron black specular Iron Ore*; from the Isle of Elba.
- 62 *Iron black, somewhat more inclining to brownish*, magnetic Iron Stone, with Quartz; from Ehrenfriedersdorf in Saxony.
- 63 *Bluish black earthy Cobalt Ore*, on Sandstone; from Saalfeld.
- 64 *Bluish black, rather more inclining to greyish*, Argillite; from Saxony.

4. Blue.

- 65 *Indigo blue Iron Ore*; from Ekkardsberg in Thuringia.
- 66 *Pale Indigo blue, white streaked Fossil Salt*; from Tyrol.
- 67 *Azure blue crystallized Copper Ore*, with Calcareous Spar, on Iron shot compact Limestone; from Kamsdorf, in Voigtland.
- 68 *A fragment of Lapis Lazuli of a somewhat brighter Azure*, with an admixture of Quartz; from the East.
- 69 *Smalt blue Copper Ore*, on Ironshot Baroselenite; from Saalfeld.
- 70 *The same, somewhat lighter*, on Argillite; from Mehlbach in Nassau.
- 71 *Iron Ore of a Prussian blue colour*, in Ferruginous Clay; from Upper Lusatia.
- 72 *The same, a little more inclined to grey*.
- 73 *Lavender blue indurated Lithomarga*, spotted with white; from Zwickau in Saxony.

74 *Lavender*

- 74 *Lavender blue, inclining more to red, indurated Lithomarga with white stripes; from the same place.*
- 75 *Dark violet blue Amethyst; from Ceylon.*
- 76 *Somewhat lighter, violet blue Fluorspar, inclining to black at the edges, mixed with white and green, and also with Quartz; from Augustusburg in Saxony.*
- 77 *Still paler, Violet blue Amethyst; from Heidelberg, on the confines of Bohemia.*
- 78 *Labradore Felspar, mutably reflecting sky blue, traversed by white streaks; from the Coast of the same name, in America.*
- 79 *Superficial blue Copper Ore of a somewhat lighter sky blue colour, with earthy Cobalt Ore, on Baroselenite; from Saalfeld.*
- 80 *Light sky blue, varying into Verdigris green, Fluor Spar; from Ehrenfriedersdorf.*

5. Green.

- 81 *Verdigris green calciform Copper Ore, on ferruginous Quartz; from Nassau.*
- 82 *Verdigris green crystallized Fluor Spar, upon and under a slip of Quartz; from Saxony.*
- 83 *Mountain green Hornstone; from Altenberg.*
- 84 *A full grass green Emerald; from the East.*
- 85 *Dark grass green Malachite, on indurated Iron Ochre; from Kamsdorf.*
- 86 *Grass green Fluor Spar, which in different places inclines a little to yellowish, and is intermixed with violet blue; from Ehrenfriedersdorf in Saxony.*
- 87 *Malachite passing from the grass to the apple green, in Quartz; from Nassau.*
- 88 *A fragment of full apple green, Crysoprasium; from Kosetz in Silesia.*
- 89 *Apple green, slightly inclining to greyish, Crysoprasium; from the same place.*
- 90 *Pale apple green, strongly verging on white, Nickel Ochre, on Kupfernichel; from Annaberg in Saxony.*
- 91 *Dark leek green common Asbestus.*
- 92 *Somewhat lighter, leek green Actynolite; from Breitenbrunn in Saxony.*
- 93 *Blackish green Serpentine; from Zöblitz.*

- 94 *Dark olive green Pitchstone*; from Meissen.
- 95 *Olive green Pitchstone more inclining to yellow*; from the same place.
- 96 *Canary green calciform Bismuth Ore*, on native Bismuth, intermixed with Quartz; from Schneeberg.

6. Yellow.

- 97 *Sulphur yellow native Sulphur*; from Switzerland.
- 98 *Rather lighter, Sulphur yellow Steatites*, on Serpentine; from Zöbliz.
- 99 *Perfect brassy yellow Copper Pyrites*; from the Hartz.
- 100 *Somewhat tarnished, brassy yellow Copper Pyrites*, with Fluor Spar; from Stralsberg in the Hartz.
- 101 *Lemon yellow Lead Ore*, on compact Limestone; from Carinthia.
- 102 *Gold yellow native Gold*, in Quartz, with disintegrated Porphyry; from Transylvania.
- 103 *Honey yellow Amber*; from the coast of Prussia.
- 104 *Rather lighter, honey yellow Opal*.
- 105 *Wax yellow Sparry Lead Ore*, from Villack in Carinthia.
- 106 *Pale metallic yellow Martial Pyrites*, in Calcareous Spar with a little Blende, from Freiberg.
- 107 *Straw yellow calciform Bismuth Ore*, on a Quartz vein-stone; from Schneeberg.
- 108 *Similar yellow Earth*.
- 109 *Pale wine yellow Topaz-crystal*; from Schneckenstein.
- 110 *Fuller wine yellow Topaz-crystal*; from the same place.
- 111 *Ochre yellow Earth*; from Saxony.
- 112 *Somewhat fuller, Ochre yellow Calamine*; from Austria.
- 113 *Isabella yellow Sparry Iron Ore*, with Copper Pyrites; from Saxony.
- 114 *Pale Isabella yellow Earth*; from Saxony.
- 115 *Orange yellow Amber*; from Prussia.
- 116 *Orange yellow superficial Calamine*, on greyish white Calamine and Galena; from Poland.

7. Red.

- 117 *Aurora red Realgar*; from Hungary.
- 118 *Aurora red inclining to yellow, yellow Blende*, with Galena and Quartz; from Transylvania.

119 *Perfect*

- 119 *Perfect Hyacinth red*, Hyacinth fragments; from Ceylon.
- 120 The same of a *somewhat lighter colour*, polished; from the same place.
- 121 *Brick red* indurated Iron Ochre, on compact brown Iron stone.
- 122 *Brick red*, more inclining to brown, Pitchstone; from Meissen.
- 123 *Intense Scarlet red* Cinabar, on Quartz, resembling Hornstone; from Deux Ponts.
- 124 *Somewhat darker*, *Scarlet red* Cinabar, on Hornstone; from the Palatinate.
- 125 *Copper red* arborescent Native Copper, with some Quartz; from Russia.
- 126 *Much lighter*, *Copper red* Kupfernickel, with Siderocalcite, in Bituminous Marlite; from Sangerhausen.
- 127 A *Blood red*, rose-cut Garnet; from Bohemia.
- 128 *Blood red* Carnelian; from Ceylon.
- 129 The same, a *little darker*; from the same place.
- 130 *Carmine red* fibrous Copper Ore, with some Cochineal red Copper Ore and Quartz; from Rhein Breitenbach.
- 131 *Carmine red* superficial Cinabar, on Bituminous Shale; from Idria.
- 132 *Cochineal red*, red Silver Ore, with Quartz, on Baroselenite; from the Palmbaum at Marienberg.
- 133 *Crimson red* Garnets, which at first sight appear Blood Red, but held before the light, their genuine colour becomes evident; from Bohemia.
- 134 Some full *Crimson red* Rubies.
- 135 *Very pale*, *Carnation red* Gypsum, intermixed with green clay; from Thuringia.
- 136 *Perfectly Carnation red* Lithomarga; from Rochliz.
- 137 *Dark Carnation red* Baroselenite; from Wittichensdorf near Kemniz in Saxony.
- 138 *Rose red* Manganese Ore, with interspersed grey Copper Ore; from Kapnic in Transylvania.
- 139 *Dark Peach Blossom red* Cobalt Ore, with brown earthly Cobalt Ore and Baroselenite, on Sandstone; from Saalfeld.
- 140 *Somewhat lighter*, *Peach blossom red* Cobalt Ore, on Quartz; from Rappold at Schneeberg.

- 141 *Mortdoré red Ore of Antimony, with grey Cobalt Ore in Quartz; from Braunfsdorf.*
- 142 *Dark Mortdoré red, brown Ochry Iron Ore; from Kamsdorf.*
- 143 *Very dark Mortdoré red, inclining to brown, light Lamellar Silver Ore; from the Hartz.*
- 144 *Brownish red Iron Ochre, on compact brown Iron Stone; from Voigtland.*
- 145 *Dark brownish red Argillaceous Iron Stone; from Wehrau in Upper Lusatia.*

8. *Brown.*

- 146 *Reddish brown, very quartzzy, compact Iron Stone, intermixed with much Quartz; from Saxony.*
- 147 *Dark reddish brown Tinstone, with crystallized Tin Ore, Talc and Steatites, on Gneiss; from Ehrenfriedersdorf.*
- 148 *Very dark, reddish brown Sparry Iron Ore; from Altenberg.*
- 149 *Very small reddish brown Crystals of brown Blende, which are intermixed with Galena and yellowish brown Blende; from Nagybania in Hungary.*
- 150 *Perfectly Clove brown Rock Crystal; from Bohemia.*
- 151 *Rock Crystal of a very dark Clove brown at the edges, but otherwise inclining to whitish, with some Iron Ochre; from Eibenstock.*
- 152 *Yellowish brown Argillaceous Iron Stone; from Wehrau.*
- 153 *Indurated Iron Ochre, passing from yellowish brown, into Ochre yellow.*
- 154 *Pinchbeck brown Mica; from Wermeland in Sweden.*
- 155 *Liver brown earthy Cobalt Ore, with incumbent blue Copper Ore; from Saalfeld.*
- 156 *Blackish brown Lowland Argillaceous Iron Stone; from Oels, near Sagan, in Lower Silefia.*
- 157 *Dark blackish brown Mica; from Russia.*
- 158 *Very dark, blackish brown Quartz, on smoke grey ditto, with some Flint; from Schneeberg.*

b. *Tarnished*

b. Tarnished Colours.

- 159 *Peacock tail* tarnished Copper Pyrites; from Könitz in Schwarzburg.
- 160 *Iridescent* tarnished brown Hæmatites, with much Iron Ochre, and compact brown Iron Stone; from Treves.
- 161 *Pidgeon-neck* tarnished native Bismuth, in Quartz; from Rappold at Schneeberg.
- 162 *Dark Pidgeon-neck* tarnished Arsenical Pyrites, with Calcareous Spar, on decayed Gneiss; from Freiberg.
- 163 Tarnished Purple Copper Ore, *with the colour of tempered Steel*, in Quartz, with some Mica and Copper Pyrites; from Saxony.

c. The Play of Colours.

- 164 A fragment of Mountain Crystal, which in many places displays, in its recent fractures, the most beautiful Iridescent colours.

d. The mutable Reflection of Colours.

- 165 A polished Labrador Felspar, which mutably reflects *from its surface*, partly Gold yellow, partly Pinchbeck brown, and partly Sky blue; from America.
- 166 Milk white Oriental Opal, *from its interior*, mutably reflecting yellowish; from Eibenstock in Saxony.

B. PARTICULAR EXTERNAL GENERIC CHARACTERS.

A.A. Solid Fossils.*a. The external Appearance.**a.a. THE EXTERNAL SHAPE.**1. Common External Shape.*

- 167 *Massive* granular Limestone, in Argillite; from Braunsdorf.
- 168 *Massive* Galena, in yellow Blende; from Scharfenberg.
- 169 *Coarsely disseminated* Tinstone and Copper Pyrites, in Quartz; from Ehrenfriedersdorf.

- 170 *Minutely disseminated* Tinstone, in a mixture of Arsenical Pyrites, Fluor Spar, and Lithomarga; from Ehrenfriedersdorf.
- 171 *Finely disseminated* Argentiferous Arsenical Pyrites, in Quartz; from Braunsdorf.
- 172 Opal, in *sharp cornered fragments*; from the Opalstollen at Eibenstock.
- 173 A *blunt cornered fragment* of Flint; from Poland.
- 174 *Inhering granular* (Graupig) Galena, in compact Baroselenite, intermixed with some Fluor Spar; from Freiberg.
- 175 Garnet in *coarse inhering grains*, in Hornblende Slate; from Saxony.
- 176 Magnetic Iron Sand in *coarse detached grains*; from Russia.
- 177 Garnet, in somewhat *smaller*, similar grains; from Bohemia.
- 178 Magnetic Iron Sand in *small grains*; from Russia.
- 179 The same, in *minute grains*, intermixed with common sand; from the same place.
- 180 Native Silver in *plates*, on Baroselenite; from the Himmelsfürst near Freiberg.
- 181 Porcelain earth forming an *overcast* on Quartz; from Aue near Schneeberg.
- 182 *Thick superficial* vitreous Silver Ore, on Calcareous Spar, with Argillite; from Schneeberg.
- 183 *Thinner superficial* red Silver Ore, on Native Arsenic, with Baroselenite, Fluor Spar, and some Sparry Iron Ore; from the Kurprinz Friedrich August, near Freiberg.
- 184 *Thin superficial* vitreous Copper Ore, on Bituminous Marlite; from Sangerhausen.
- 185 *Very thin superficial* native Silver, on decayed Gneiss; from the Roman Eagle at Johann Georgenstadt.

2. Particular External Shape.

- 186 *Dentiform* Native Silver; from Johann Georgenstadt.
- 187 *Filiform* Native Silver, in Baroselenite; from the Himmelsfürst near Freiberg.
- 188 *Capillary* Native Silver, in decayed hepatic Pyrites, forming a small vein in a siliciferous Argillite; from the Priest and Levite, at Freiberg.

189 *Reticulated*

- 189 *Reticulated* Native Silver, on Carnation red Calcareous Spar; from the Himmelsfürst at Freiberg.
- 190 *Reticulated* grey Cobalt Ore, with a little Native Silver; from Annaberg.
- 191 *Minutely Reticulated* ditto, with some Quartz; from Schneeberg.
- 192 *Dendritic* martial Pyrites, on Argillite; from Deux Ponts.
- 193 *Dendritic* Native Copper, in Argilliferous Quartz.
- 194 *Coralliform* Calcareous Sinter; from Steiermark.
- 195 *Stalactitic* white Calcareous Sinter, on decayed Gneiss; from Johann Georgenstadt.
- 196 *Stalactitic* brown Hematites, on compact brown Iron Stone, with Baroselenite; from Kamisdorf.
- 197 *Slender Tubuliform* martial Pyrites, with Galena and Baroselenite; from Gersdorf near Freiberg.
- 198 *Somewhat thicker* ditto, compact brown Iron Stone; from Saxony.
- 199 *Still thicker* ditto, brown Hematites, on compact Iron Stone; from Eibenstock.
- 200 *Tubuliform* Calcareous Stalactite, with wide bores; from the Erzgebirge.
- 201 *Pipesbaped Tubuliform* striated Calcareous Sinter; same place.
- 202 *Shrublike* Calamine; from Poland.
- 203 *Botryoidal* Manganese, resembling the foregoing, on compact brown Iron Stone; from Schmalkalde.
- 204 A perfectly *Spheroidal* Aluminous Slate; from Upper Lusatia.
- 205 A very sandy, fine grained, *small-globular* Limestone.
- 206 An *Elliptical* Quartz pebble.
- 207 The same, *flatter and smaller*.
- 208 Rock Crystal of a *similar shape*, though not so regular.
- 209 *Amygdaloidal Globular* green earth, with calcareous spar inclosed in the heart of the Amygdaloid; from Zwicau.
- 210 A *Spheroid* of Porphyry; from Mutschen.
- 211 An *imperfect* porphyry *Spheroid*, inclosing Calcedony and Quartz; from Naila in Bareuth.
- 212 *Flat Reniform* red Hematites; from the Irrgang in Bohemia.

- 213 *More elevated Reniform* red Hematites ; from the same place.
- 214 The same, *perfectly spheroidal Reniform* ; from Eibenstein.
- 215 *Small Reniform* Calcareous Stalactite, with Baroselenite, in an Iron shot earthy Cobalt Ore ; from Kamisdorf.
- 216 *Smaller Reniform* brown Hematites ; from the same place.
- 217 *Very small Reniform* compact Malachite, with fibrous Malachite, intermixed with Copper Pyrites and Tile Copper Ore ; from Kamisdorf.
- 218 *Bulbous* Flint ; from Lithuania.
- 219 Galena, *appearing as if fused*, on brown Blende and Martial Pyrites ; from Freiberg.
- 220 *Similarly circumstanced* Calcedony, on crystallized Galena, with Arsenical Pyrites, in Quartz ; from the same place.
- 221 *Specular* Martial Pyrites, on Massive ditto, in Quartz ; from the Catharina at Raschau in the Erzgebirge.
- 222 Vitreous Silver Ore in *thick flakes*, on Calcareous Spar ; from Schneeberg.
- 223 Native Silver in *thin flakes*, on Gneiss ; from Johann Georgenstadt.
- 224 The same, in *still thinner flakes*, on Quartz intermixed with Arsenical pyrites ; from Branusdorf.
- 225 *Pectinated* Martial Pyrites ; from Freiberg.
- 226 *Very slender pectinated* Martial Pyrites, aggregated into distinct Fasciculi, on Quartz intermixed with Blende.
- 227 *Hexahedral Cellular* Quartz, with Quartz Crystals, in a Calcedony Spheroid ; from the Palatinate.
- 228 *Tetrahedral Cellular* Martial Pyrites ; from Freiberg.
- 229 *Very small, Tetrahedral Cellular* Martial Pyrites ; from the same place.
- 230 *Polyhedral Cellular* Martial Pyrites intermixed with Quartz, on a matrix consisting of Galena, Massive Martial Pyrites and Jasper ; from Hungary.
- 231 *Polyhedral Cellular* compact brown Ironstone, with Iron Ochre ; from Wehrau in Upper Lusatia.
- 232 *Round and parallel Cellular* Quartz ; from Freiberg.
- 233 *Spongelike round Cellular* Quartz ; from the Isaac at Røthfurst near Freiberg.

- 234 *Doubly Cellular* Quartz with brown Ironstone intermixed; from Catharinenburg in Siberia.
- 235 *Veiny Cellular* dark grey Limestone, in the same, Lighter, with some Martial Pyrites; from Bareuth.
- 236 Quartz with *large cubic impressions*; from the Isaac near Freiberg.
- 237 Quartz with *small cubic impressions*; from the same place.
- 238 Quartz with *very small cubic impressions*, with much Martial Pyrites and some Sparry Ironstone; from Schneeberg.
- 239 Ferruginous Quartz with *pyramidal impressions*; same place.
- 240 Greyish white Quartz with *conical impressions*, and crystallized Martial Pyrites.
- 241 Yellowish Quartz with *tabular impressions*; from Freiberg.
- 242 *Perforated* native Arsenic; from the Hartz.
- 243 *Perforated* lowland Argillaceous Ironstone; from Lower Lusatia.
- 244 *Corroded* Ferruginous Quartz, with blue Martial Earth; from Upper Lusatia.
- 245 *Amorphous* lowland Argillaceous Ironstone; from Silesia.
- 246 *Vesicular* Slag; from Upper Lusatia.
- 247 *Ramose* native Iron; from Siberia.

3. Regular External Shape.

a. Primary Figures.

- 248 *The perfect Dodecahedron* of Martial Pyrites; from Bohemia.
- 249 *The perfect Fluor Spar Cube* with *smooth surfaces*; from Gerisdorf near Freiberg.
- 250 *The Cube* with *alternate convex surfaces*, of Martial Pyrites, from Johann Georgenstadt.
- 251 *The Cube* with the lateral planes *somewhat lengthened*.
- 252 *The perfect Rhomb* of Calcareous Spar, on compact brown Ironstone; from Luttich.
- 253 Sparry Iron Ore crystallized in *acute angled Rhombs*; from Nassau Siegen.

254 *A perfect*

- 254 A *perfect Trihedral Prism* of black Schorl; from Eibenstock in the Erzgebirge.
- 255 Tourmaline crystallized in *perfect*, but Rhomboidal, *Tetrahedral Prisms*; from Ceylon.
- 256 A *perfect Hexhedral Prism* of Calcareous Spar; from the Hartz.
- 257 A *perfect Hexhedral Berill Prism*, with the *Alternate lateral Planes very narrow*; from Nertchinsk in Siberia.
- 258 Quartz crystallized in *perfect, single Hexhedral Pyramids*; from Schneeberg.
- 259 Quartz crystallized in *double Hexhedral Pyramids*, the planes of the one, corresponding with those of the other; from the Catharina at Raschau.
- 260 Calcareous Spar crystallized in double Hexhedral Pyramids, *the lateral planes of the one, set on the lateral edges of the other.*
- 261 Baroselenite crystallized in *perfect Hexhedral Tables*; from Nagybania.
- 262 Baroselenite crystallized in *perfect Tetrahedral Tables*, on Quartz; from Hungary.
- 263 The *perfect Hexhedral Lenticular* crystal of Calcareous Spar; from Joachimsthal.
- 264 Sparry Iron Ore, crystallized in *somewhat saddle shaped curved Lenses*, with Galena and grey Copper Ore; from the Hartz.
- 265 Sparry Iron Ore crystallized in the foregoing manner, but *exceeding strongly curved*, with overlaying Copper Pyrites; from the same place.

B. Modifications of the Primary Figures.

- 266 Galena crystallized in Cubes, *with their angles truncated*, on Fluor Spar; from the Isaac near Freiberg.
- 267 Galena crystallized in Cubes so *deeply truncated* in their angles, that they become intermediate between Cubes and *Octohedrons*, on Fluor Spar and some Calcareous Spar; from the Freudenstein near Freiberg.
- 268 Octohedral Prismatic Topaz Crystal, in which two pair of the lateral Planes meet together under very obtuse angles, the solid angles of the two opposite acute side edges are *deeply truncated*, and the three angles

- angles of each of these large truncating planes are *also truncated*; from Schneckenstein in Voigtland.
- 269 Tinstone crystallized in rectangular Tetrahedral, Prisms, two of their opposite *side edges truncated*, and terminated by Tetrahedral Pyramids, on Quartz; from Bohemia.
- 270 Double Hexhædral Pyramidal crystallized Quartz, with the *edges of their common base deeply truncated*; from Schneeberg.
- 271 Tetrahedral Prismatic crystallized Arsenical Pyrites, with *very obtuse dihedral summits*, the planes of these set on the acute side edges, on a mixture of Galena and Martial Pyrites; from Munzig near Freiberg.
- 272 Baroselenite crystallized in similar Prisms, but with *very acute dihedral summits*, set on as the former, on Fluor Spar; from the Halsbrücke near Freiberg.
- 273 Rectangular Tetrahedral Tabularly crystallized Baroselenite, having all the extreme planes *bevelled*; from the Kurprinz, at Grossschirma near Freiberg.
- 274 Low Hexhædral Prismatic crystallized Calcareous Spar, *obtusely acuminated by Trihedral Pyramids*, the planes of which are set on the side planes of the Prism, on very fine Slaty Hornblende Slate; from Freiberg.
- 275 Similar Calcareous Spar Crystals, but terminated by *Tetrahedral Pyramids*, two planes of which are set on the side planes, and the other two on the side edges of the Prism, in Quartz, intermixed with Copper Pyrites; from Bohemia.
- 276 Hexhædral Prismatic crystallized Quartz, acuminated by *six equal planes*, set on the side planes, so that the pyramid terminates in a *point*, on massive Quartz, intermixed with Martial Pyrites and some indurated clay; from Zinwald.
- 277 Similarly crystallized Rock Crystal, but with this variation, that the planes of the Pyramid are unequal, four of them being much smaller than the other two which are opposite, therefore terminating in an *edge*; from the same place.
- 278 Hexhædral Prismatic crystallized Quartz, *regularly acuminated at both ends*, with six planes, on Fluor Spar; from Gersdorf.

- 279 An Hexhædral Prismatic crystallized Rock Crystal, *acuminated* by *five* tolerably equal planes, and a very small *one*, from the same place.
- 280 An Hexhædral Pyramid of Rock Crystal, *acuminated* by six planes, whereof three are exceedingly small, but all are set on the lateral planes.
- 281 A similar Crystal, but with this difference, that only *one* of the acuminating planes is *very large*, but the remaining ones are pretty equal; from Silesia.

γ. *Magnitude of the Crystals.*

- 282 A fragment of a *very large* Hexhædral Prismatic Rock Crystal; from Bohemia.
- 283 A *large* Hexhædral Prismatic Smoky Topaz; same place.
- 284 A Quartz Groupe of well defined Prismatic Crystals of a *midling size*; from the Pocherstollen at Schemnitz in Hungary.
- 285 Somewhat *smaller*, similar Prismatic Quartz, with crystallized Martial Pyrites; from Freiberg.
- 286 Calcareous Spar crystallized in *small* Hexhædral Prisms, with Sparry Iron Ore, on Quartz; from Braunsdorf near Freiberg.
- 287 Galena crystallized in *small* cubes, with Quartz and Sparry Iron Ore on Argillite; from Schneeberg.
- 288 White Cobalt Ore, crystallized in *very small* cubes with their angles deeply truncated, with Quartz Crystals, on Massive Quartz, which is intermixed with native Bismuth; from Schneeberg.
- 289 Quartz crystallized in *very small* Hexhædral Prisms; from Gerisdorf near Freiberg.
- 290 White Fluor Spar, crystallized in *minute* cubes, on a mixture of Baroselenite and yellow Fluor Spar; from the same place.

δ. *Aggregation of the Crystals.*

- 291 Two *Detached* Prismatic Beryll Crystals; from Nertschinsk in Siberia.
- 292 Small Rock Crystals, *inhering* in a marly matrix, which probably formed a Spheroid, and in which are likewise some Calcareous Spar Crystals; from France.

293 Hexhædral

- 293 Hexhædral Prismatic crystallized Calcareous Spar, on a Quartz groupe, which is *inclosed* in a Spheroid of Calcedony; from the Palatinate.
- 294 Two Hexhædral Prismatic Rock Crystals, *penetrating* each other at *right angles*, thence forming macles or agglutinated Crystals; from Hungary.
- 295 Similar, macled, Prismatic Rock Crystals, adhering *laterally*; from Switzerland.
- 296 Perfect Hexhædral Calcareous Spar Crystals, adhering *vertically*; from the Hartz.
- 297 Prismatic Crystals of white Lead Ore, *adhering together*; from Zellerfeld in the Hartz.
- 298 Several Prismatic Calcareous Spar Crystals, *penetrating* each other at very *acute angles*; from Benndorf near Coblenz.
- 299 Fluor Spar Cubes, *incorporated* with each other, and accompanied by some Galena, Copper Pyrites, and also grey Copper Ore; from Gerisdorf near Freiberg.
- 300 Small Pyramidal Calcareous Spar Crystals, *penetrating* each other, all standing upon their edges, with Gneiss underneath, and some Martial Pyrites; from the Himmelsfürst near Freiberg.
- 301 A Quartz groupe in which the Pyramidal Quartz Crystals are *doubled*, but aggregated *without any certain order*; from Schneeberg.
- 302 Almost similarly aggregated, Trihædral Pyramidal Calcareous Spar Crystals, in which however somewhat of *granular concretions* are observable, in Iron Ochre; from Kamisdorf.
- 303 A groupe, in which the low Prismatic Calcareous Spar Crystals, *confusedly penetrate* and *adhere to each other*, on Rhomboidal crystallized Siderocalcite, which with the same, massive, overlays greyish white Quartz, wherein Blende and Martial Pyrites also lay; from the Neugluck and Dreieichen near Freiberg.
- 304 Tetrahædral Prismatic Baroselenite Crystals, *discovering somewhat of a scopiform* aggregation, on Gneiss; from the Fabian Sebastian at Marienberg.
- 305 *Perfect scopiformly* aggregated, Prismatic Calcareous Spar Crystals, with some Malachite, and penetrated with a little Iron Ochre; from Kamisdorf.

- 306 Pyramidal Calcareous Spar Crystals, aggregated in *Sheaflike fasciculi*, on a group of crystallized Siderocalcite, which incrusts three lateral planes of a Prismatic Rock Crystal; from Silesia.
- 307 Hexhædral Prismatic Calcareous Spar Crystals, aggregated in *columns*, on a Quartz groupe, over which numerous Crystals of Copper Pyrites are strewed; from Freiberg.
- 308 Crystallized Calcareous Spar, in low Hexhædral Prisms, aggregated in *rows*, on Quartz, which is intermixed with Argillite, and a little Galena; from the Hartz.
- 309 Quartz crystallized in Hexhædral Pyramids, aggregated in *buds*, with a little fine Slaty Gneiss underneath; from Freiberg.
- 310 White Fluor Spar, crystallized in minute cubes, aggregated in *spheroids*, on Baroselenite and yellow Blende, accompanied with Gneiss; from Gersdorf.
- 311 Baroselenite crystallized in Tetrahædral tables, forming *amygdaloidal* accumulations, with Martial Pyrites strewed over; from the Hartz.
- 312 Crystallized Calcareous Spar, in very small, almost minute, Pyramids, *which are again aggregated into small Hexhedral Pyramids*, on Quartz, wherein some Argenterous Arsenical Pyrites is interspersed; from Braunfsdorf near Freiberg.

4. Extraneous External Shapes.

a. From the Animal Kingdom.

- 313 Petrified *teeth* of a Polar Bear; from Bareuth.
- 314 A Petrified *bone*; from Brug on the Leitha.
- 315 Petrified *fishes teeth*, called Serpent's tongues; from Switzerland.
- 316 An *Impression* of an entire fish, on Bituminous Marlite; from Eisleben in Mansfield.
- 317 An *Ammonite*, in compact Limestone, with inlaying calcareous Spar and martial Pyrites; from Ebelsfeld in Bamberg.
- 318 A marly *Nautilite*; from Jena.

319 Several

- 319 Several *Helixites*, in grey compact Limestone; from the Netherlands.
- 320 A *Turbinite*, in Argillaceous Sandstone; from Champagne.
- 321 Two *Belemnites* changed to striated Limestone.
- 322 *Pectunculites* in indurated Marle; from Thuringia.
- 323 Smooth *Chamites*, with streaked ditto, in sandy Marle; from the same place
- 324 Delicately streaked *Chamites* in Limestone; from Upper Lusatia.
- 325 Smooth *Terebratulites*, in compact Limestone.
- 326 A *Mitulite*, in yellowish grey compact Limestone; from Upper Lusatia.
- 327 A smooth *Gryphite* of Limestone; from Gera.
- 328 A streaked *Gryphite*; same place.
- 329 An *Ostracite* (commonly called petrified Cockscomb) of Limestone; from Switzerland.
- 330 An *Echinite* in Flint; from Poland.
- 331 *Echinite Spines*, in Limestone.
- 332 Numerous small *Echinite Spines*, in Limestone; from the English Coast.
- 333 An *Encrinure* of compact Limestone; from the Netherlands.
- 334 *Trochites* with smooth terminations, in compact Limestone; from Riksburg.
- 335 A *Trochite* with striated terminations; from Switzerland.
- 336 Some *Entrochites* of the latter kind; from the same place.
- 337 An *Entrochite* composed of *Trochites* of the former kind.
- 338 An *Astroite*; from Sweden.
- 339 A delicate *Reteporite* in Flint, which is besides connected with a *Mitulite*; from Poland.

B. From the Vegetable Kingdom.

- 340 A *Phytolite*, on Sandstone.
- 341 Another, on indurated Marle.
- 342 A *Bibliolite*, on Marle.

- 343 A still very light, fibrous and argilliferous fragment of *transmuted wood*; from Erfurt.
- 344 *Wood*, completely changed into *Woodstone*; from Kemnitz.

b b. THE EXTERNAL SURFACE.

- 345 A Galena groupe, with *uneven* surfaces, on Quartz, intermixed with Fluor Spar; from Freiberg.
- 346 Reniform brown Hematites, with a *granular surface*, in compact brown Iron Stone; from Kamsdorf.
- 347 A Fluor Spar groupe, the cubes of which have all drusy surfaces; from Gersdorf.
- 348 Quartz, with impressions, and a very *rough* surface.
- 349 A Rock Crystal Pebble, with a *scarcely rough* surface; from the Pleiss.
- 350 A Tin groupe, with a *perfectly smooth* surface; from Zinnwald.
- 351 A prismatic Rock Crystal, whose sides are *streaked transversely*; from Bohemia.
- 352 Two Topaz Crystals, whose lateral planes are *streaked longitudinally*; from Schneckenstein.
- 353 A groupe of Arsenical Pyrites, in which the planes forming the summits of the prisms, are *streaked diagonally*, with Quartz Crystals; on Gneiss; from Munzig near Freiberg.
- 354 A cube of martial Pyrites, whose lateral planes are *alternately streaked*; from Catharina at Raschau.
- 355 Native Bismuth, which is *plumiformly streaked*, in Hornstone, accompanied with Quartz; from Johann Georgenstadt.
- 356 Whitish grey Cobalt Ore, with a fine *reticulated* surface, with some Kupfernickel, native Bismuth, and Quartz; from the Weiss Kirch at Schneeberg.

c c. THE EXTERNAL LUSTRE.

1. *Intensity of the Lustre.*

- 357 Crystallized Tinstone, having a *strong lustre*, with a little Talc; from Ehrenfriedersdorf.

358. A

- 358 A very small tabular Crystal of specular Iron Ore, which *glistens*; from the Gottvertrauten Daniel, near Freiberg.
- 359 A Rock Crystal Pebble, whose surface has a *weak Lustre*; from Upper Lusatia.
- 360 A Flint Pebble, with a *glimmering* surface; from Leipzig.
- 361 Small Botryoidal Calcedony, with a *dull* surface.

2. Sort of Lustre.

- 362 A groupe of martial Pyrites of a *metallic Lustre*, partially coated with Iron Ochre, from the Catharina at Raschau.
- 363 Crystallized brown Blende, with a *semimetallic Lustre*, and partially sprinkled with Quartz; from Hungary.
- 364 Crystallized yellow Lead Ore, wherein the *waxy* Lustre is obvious; from Villach in Carinthia.
- 365 Crystallized Zeolite, with the Lustre of *Mother of Pearl*; from the Hartz.
- 366 A Quartz Pyramid, with a *glassy* Lustre; from Bohemia.

d d. THE INTERNAL LUSTRE.

1. Intensity of the Lustre.

- 367 A fragment of Galena, which has internally a *strong Lustre*, in the recent fracture; from Freiberg.
- 368 Grey Ore of Antimony, whose internal Lustre is *intermediate* between the *strong* and *moderate*, with some Quartz; from Dauphine.
- 369 Copper Pyrites, whose recent fracture *moderately glistens*, with Quartz intermixed; from Schneeberg.
- 370 Massive grey Copper Ore, having a *weak Lustre* in the recent fracture, with some Quartz; from the Hartz.
- 371 Grey Flint, *strongly glimmering* internally; from Leipzig.

372. Striated

- 372 Striated Galena, *faintly glimmering* in the recent fracture; from the Hartz.
- 373 Compact Fluor, *very faintly glimmering* internally; from Strasberg in the Hartz.
- 374 Pearl grey Hornstone, which passes from the *glimmering* to the *dull*; from Kofemütz in Silesia.
- 375 Greyish white, *perfectly dull*, Argill; from Upper Lusatia.

2. Sort of Lustre.

- 376 Galena, whose recent fracture exhibits a *perfectly metallic* Lustre; from Freiberg.
- 377 Red micaceous Iron Ore, whose Lustre is *intermediate* between the *metallic* and *common*; from Bareuth.
- 378 Yellow Blende, with a *semimetallic* Lustre.
- 379 Coarsely disseminated white Lead Ore, with the *waxy* Lustre, in ferruginous Quartz; from Bleisfeld in the Hartz.
- 380 Yellow Zeolite, with a *Mother of Pearl* Lustre.
- 381 Greyish white Calcareous Spar, having a *glassy* Lustre, with partial traces of green Calx of Copper; from Schneeberg.
- 382 Very fine granular Limestone, of the *same* kind of Lustre, though more *difficultly discernible*; from Längsfeld near Freiberg.

II. THE FRACTURE.

1. Compact Fracture.

- 383 *Coarse splintery* Hornstone; from Saxony.
- 384 Petrified wood, with a *small splintery* fracture; from Kemnitz.
- 385 Compact Limestone, with a *fine splintery* fracture passing into the *Conchoidal*; from Swabia.
- 386 Botryoidal Calcedony, with an *even* fracture; from the Palatinate.
- 387 A fragment of compact Galena, also with an *even* fracture, but exhibiting here and there, some fibres; from the Hartz.

388 *Perfectly*

- 388 *Perfectly Conchoidal* Obsidian ; from Iceland.
 389 *Perfectly*, but *somewhat smaller Conchoidal*, Rock Crystal ; from Bohemia.
 390 *Somewhat flatly Conchoidal* Flint ; from Saxony.
 391 *Perfectly flat Conchoidal* Ligniform Opal ; from Hungary.
 392 *Imperfectly Conchoidal* yellowish grey Hornstone ; from Johann Georgenstadt.
 393 *Imperfectly*, and *somewhat minutely Conchoidal*, Pitch Stone, from Meissen.
 394 A fragment of Quartz, whose *minutely Conchoidal* fracture, *somewhat approaches the splintery* ; from Freiberg.
 395 *Minutely Conchoidal* Copper Pyrites, approaching to the *uneven* ; from Goslar in the Hartz.
 396 A fragment of grey Copper Ore, of a *somewhat coarse grained uneven* fracture, with some Copper Pyrites, and Quartz ; from the Hartz.
 397 Martial Pyrites, whose fracture is *intermediate* between the *coarse* and *small grained uneven*, with a little Calcareous Spar, intermixed with Blende ; from the K  hschacht, beside Freiberg.
 398 Kupfernickel, with a *small grained uneven* fracture, which is intermixed with whitish grey Cobalt Ore, and Siderocalcite ; from Schneeberg.
 399 Iron Shot martial Pyrites, with a *fine grained uneven* fracture, on Quartz and Gneiss ; from the Erzgebirge.
 400 Steatites, with a *coarse grained earthy* fracture ; from Bareuth.
 401 Argillaceous Iron Stone, with a *fine earthy* fracture ; from Wehrau.
 402 Native Silver, with a *Hackly* fracture, between two walls of Iron Shot Gneiss ; from Johann Georgenstadt.

2. *Fibrous Fracture.*

- 403 *Exceeding delicately fibrous* Lime Stone.
 404 *Very delicately straight* fibrous Malachite, with intermixed Argillite ; from Kamsdorf.

L

405 Rather

- 405 Rather *coarse* fibrous red Antimonial Ore, on Quartz, wherein grey ditto is interspersed; from Braunsdorf.
- 406 *Coarse* and *straight* fibrous Malachite, on Iron shot tile Copper Ore; from the Bannat.
- 407 Remarkably *coarse*, though still *straight*, fibrous Calcareous Stalactite; from Carlsbad in Bohemia.
- 408 Ditto, *very coarse*, and in some places *slightly curved* fibrous; from the same place.
- 409 *Parallelly curved* fibrous Gypsum; from Thuringia.
- 410 *Imperfectly Scopiformly diverging* fibrous Malachite, on Ironshot tile Copper Ore; from Kamsdorf.
- 411 *Perfectly* ditto, red Iron stone; from the Irrgang in Bohemia.
- 412 *Stellularly diverging*, fibrous Calcareous Stalactite; from Eisenertz in Steiermark.
- 413 *Interlaced* fibrous grey Ore of Antimony, passing into the *striated*, in Quartz; from Braunsdorf.

3. *Striated Fracture.*

- 414 *Very broad striated*, specular Iron Ore, on a Quartz Matrix; from Freiberg.
- 415 *Moderately broad striated* Zeolite; from Ferröe.
- 416 *Narrow striated* grey Ore of Manganese; from Johann Georgenstadt.
- 417 *Long and narrow striated* Asbestus; from Zöblitz in Saxony.
- 418 *Short and moderately broad striated* Actynolite, with some Quartz; from Schwarzenberg.
- 419 *Curved*, but *parallel striated* Asbestus; from Scheibenberg.
- 420 *Scopiformly diverging* striated grey Ore of Manganese; from Ilfeld in the Hartz.
- 421 *Stellularly diverging* striated red Cobalt Ore, on Quartz; from Schneeberg.
- 422 *Irregularly interlaced* striated grey Ore of Antimony, in Quartz; from Braunsdorf.

4. *Foliated*

4. *Foliated Fracture.**a. Direction of the Lamella.*

- 423 Yellow Blende, with a *perfectly plain foliated* fracture; from Scharfenberg near Meissen.
- 424 Yellowish brown Baroselenite, with a *spherically convex, curved foliated* fracture, overlaid with Crystals of the same; from Iberg in the Hartz.
- 425 Common Talc, with an *undulatingly curved foliated* fracture; from Schwarzenberg.
- 426 Galena, with a *Petaloidally curved foliated* fracture; from Freiberg.
- 427 Specular Gypsum, with an *Indeterminately curved foliated* fracture; from Eisleben.

β. Disposition of the Lamella.

- 428 Pinchbeck brown Mica, the Lamellæ of which have but *one* direction; from Geier in the Erzgebirge.
- 429 A fragment of Felspar, having a *twofold* disposition of the Lamellæ of the fracture; from Freiberg.
- 430 Massive Siderocalcite, discovering a *triple* disposition of the Lamellæ of the fracture, in Micaceous Quartz; from the same place.
- 431 Greenish white Fluor Spar, with a *quadruple* disposition of the Lamellæ; from Freiberg.
- 432 Yellow Blende, with a *sextuple* disposition of the Lamellæ, traversed by a slip of red Ore of Manganese; from Scharfenberg.

5. *Slaty Fracture.*

- 433 *Perfectly straight*, and *thin slaty* Argillite; from Schneeberg.
- 434 A *little thicker*, also *straight slaty* Argillite; from Meßersdorf, in Upper Lusatia.
- 435 *Thick and indefinitely curved slaty*, Schistose Porphyry, with inlaying Felspar; from Hainewalde, in Upper Lusatia.

- 436 *Undulatingly curved slaty Gneiss*; from Lofniz, near Freiberg.

f.f. SHAPE OF THE FRAGMENTS.

1. *Regular Fragments.*

- 437 *A cubic fragment of Fossil Salt*; from Gallicia.
 438 *A moderately large, but low, cubic fragment of Galena*; from Freiberg.
 439 *Galena, with much smaller cubic fragments*; from Freiberg.
 440 *A Rhomboidal fragment of Calcareous Spar, which is specular on all its faces*; from Iceland.
 441 *A Rhomboidal fragment of Felspar, which is specular on four of its faces, only*; from Siebenlehn, near Freiberg.
 442 *A Rhomboidal fragment of specular Gypsum, which is specular only on two sides*; from Eisleben.
 443 *A Trapezoidal fragment of Stone Coal*; from Potschappel, near Dresden.
 444 *A Trihedral pyramidal fragment of Fluor Spar*; from Freiberg.
 445 *Several pyramidal Fluor Spar fragments, strongly inhering in one another*; from Gerfsdorf, near Freiberg.
 446 *A Dodecahedral fragment of brown Blende*; from Kapnic in Transylvania.

2. *Irregular Fragments.*

- 447 *A Cuneiform fragment of red Hematites*; from the Irrgang in Bohemia.
 448 *A long and broad splintery fragment of Bituminous Marlite, with Copper Pyrites*; from Mansfield.
 449 *A long, but also very narrow, splintery fragment of Actynolite*; from the Erzgebirge.
 450 *Tabular fragments of common Mica*; from Geier.
 451 *A somewhat thicker, Tabular fragment of Argillite*; from Schneeberg.
 452 *A very sharp edged fragment of Rock Crystal*; from Bohemia,

- 453 A moderately sharp edged fragment of Granular Limestone; from Upper Lusatia.
 454 A not remarkably blunt edged fragment of common, small grained Mica; from Geier.
 455 A blunt edged fragment of fine grained Gypsum; from Thuringia.

g. g. SHAPE OF THE DISTINCT CONCRETIONS.

1. Granular Distinct Concretions.

- 456 Oviform Limestone composed of coarse, round granular, distinct concretions; from Transylvania.
 457 The same, of somewhat smaller ditto; from the same place.
 458 Compact Limestone of small and round grained distinct concretions (Hammities. Roestone); from Lunenburg.
 459 The same, of fine, round grained ditto; from Bernburg.
 460 Argillaceous Ironstone of very fine grained, Lenticular ditto, with some Quartz.
 461 A fragment of Calcareous Spar, with co-angularly granular ditto; from Schneeberg.
 462 A fragment of Hematites, with oblong, angularly granular ditto; from Bohemia.
 463 A fragment of Fluor Spar, with coarse, angularly granular ditto; from Gerisdorf.
 464 Galena, with coarse granular ditto; from Freiberg.
 465 Calcareous Spar, with small granular ditto, on Argillite; from Schneeberg.
 466 Greenish grey Mica of somewhat smaller, granular ditto; from Geier.
 467 Brown Garnet, with small grained, approaching to the fine grained ditto; from Breitenbrunn.
 468 Galena of fine granular ditto, in some places approaching the foregoing, with Gneiss; from Freiberg.
 469 Carrara Marble of very fine granular distinct concretions.

2. Lamellar

2. *Lamellar distinct Concretions.*

- 470 Baroselenite, of *straight lamellar distinct* concretions; from Iberg.
- 471 Bluish white Calcedony, of *fortificationlike, thick Lamellar* ditto; from the Palatinate.
- 472 Fibrous Malachite, with *spherically concentric Lamellar* ditto; from the Bannat.
- 473 Carnelian of similar, *smaller, almost conically concentric, Lamellar* ditto; from the Halsbach beside Freiberg.
- 474 Calcareous Stalactite, with *Conically Concentric, Lamellar* ditto; from the Erzgebirge.
- 475 White Baroselenite, with *very thick Lamellar* ditto; from Freiberg.
- 476 Calcedony with *thick Lamellar* ditto, between Opal; from Iceland.
- 477 Agate, with *thin Lamellar* ditto; from the Palatinate.
- 478 Massive Specular Iron Ore, of *very thin Lamellar* ditto, in Quartz; from Altenberg.

3. *Columnar distinct Concretions.*

- 479 Wine yellow Calcareous Spar, composed of *Straight Columnar distinct* Concretions; from England.
- 480 Red Argillaceous Ironstone, of *curved Columnar* ditto; from Bohemia.
- 481 Basalt, of *Pentagonal Prismatic Columnar* ditto; from Upper Lusatia.
- 482 *Very thick Columnar*, greyish white common Quartz; from Frauenstein near Freiberg.
- 483 Violet blue Amethyst, of *thick Columnar distinct* Concretions; from Heidelberg.
- 484 Striated Calcareous Spar, of *slender Columnar* ditto; from the Carpathian Mountains.
- 485 Red Argillaceous Ironstone, of *very slender Columnar* ditto; from Hoscheniz in Bohemia.

b. b. THE TRANSPARENCY.

- 486 *Perfectly*, but in the usual manner, transparent Specular Gypsum; from Ilmenau.
- 487 Similarly transparent, but *duplicating*, Calcareous Spar; from Iceland.
- 488 A fragment of Rock Crystal, *passing* from the transparent to the *semitransparent*; from Bohemia.
- 489 Greenish Fluor Spar, with violet blue stripes, in a high degree *semitransparent*; from the Erzgebirge.
- 490 A fragment of Rock Crystal, *perfectly semitransparent*; from Saxony.
- 491 Calcedony, *passing* from the *semitransparent* into the *translucid*; from Ceylon.
- 492 A fragment of Crysoptasium, which is *translucid*; from Koseniz in Silesia.
- 493 Calcedony, which is very *strongly translucid* at the edges.
- 494 Pale Smoke grey Flint, *translucid* at the edges; from Poland.
- 495 A small fragment of Heliotrop, *faintly translucid* at the edges; from Siberia.
- 496 A fragment of Steatites, *very faintly translucid* at the edges; from Bareuth.
- 497 *Perfectly opaque*, Fibrous Malachite: from Siberia.

i. i. THE STREAK.

1. Similar Streak.

- 498 Galena, whose *streak* is of a perfectly Lead grey colour; from Freiberg.
- 499 White foliated Baroselenite, the streak of which likewise coincides with the colour of the Fossil; from the same place.

2. Different streak.

- 500 Red Silver Ore, of a dark crimson red streak, in a Quartzzy Matrix intermixed with much Martial Pyrites and a little Galena; from Freiberg.
- 501 Common Specular Iron Ore, of a very dark crimson red streak; from Altenberg.
- 502 A fragment of Fibrous red Ironstone, with a blood red streak; from Eibenstock.

503 Black

- 503 Black Tinstone, with a *reddish brown* streak.
 504 Yellow Blende, with a *yellowish white* streak, intermixed with Siderocalcite, and accompanied with Quartz; from Scharfenberg.
 505 Greenish grey Argillite, with a *greyish white* streak; from Schneeberg.

k. k. THE STAIN.

- 506 Yellow Earth which *very strongly stains*; from Saxony.
 507 Tripoli which *strongly stains*; from Potschappel near Dresden.
 508 Moderately strong staining, Molybdena; from Altenberg.
 509 Slightly staining, Bituminous Wood; from Upper Lusatia.
 510 Yellowish grey Schistose Porphyry, *destitute* of all power of staining; from the same place.

l. l. THE HARDNESS.

1. Hard.

- 511 Rubies, which are *but little affected* by the file.
 512 Topazes, somewhat *more affected* by the file; from Schneckenstein.
 513 Greyish white Amethyst, which is *moderately affected* by the file.
 514 Greyish white Flint, on which the file makes a *strong impression*; from Lithuania.
 515 Minute conchoidal greyish white Quartz; which *yields still more* to the file; from Upper Lusatia.
 516 Red Jasper, *easily affected* by the file, in Quartz; from Freiberg.
 517 Green Pitchstone, *intermediate* between *hard* and *half hard*; from Meissen.

2. Half Hard.

- 518 Yellow Blende, in an *high degree half hard*; from Scharfenberg.
 519 Yellowish grey compact Limestone, *moderately half hard*.

3. *Tender or Soft.*

- 520 Foliated Baroselenite, which is *completely soft*; from Freiberg.
 521 Serpentine in a *high degree soft*; from Zöblitz in Saxony.
 522 Smoke grey, indurated Marle, *passing from the soft into the very soft*.

4. *Very Soft or Tender.*

- 523 Foliated Gypsum, with adhering striated ditto; from Thuringia.
 524 Greenish indurated Clay, *passing from the very soft into the friable*; from Upper Lusatia.

m. m. THE COHESION.

- 525 Brittle yellow Fluor Spar; from Gersdorf.
 526 Wolfram *not altogether so brittle*; from Altenberg.
 527 *More yielding* native Bismuth, with some Quartz; from Schneeberg.
 528 *Perfectly malleable* Vitreous Silver Ore, with some overlaying Clay; from Freiberg.

n. n. THE FLEXIBILITY.

- 529 *Elastically flexible* Mica; from Russia.
 530 *Commonly flexible* Apple green Talc; from the Venetian Territories.
 531 *Perfectly inflexible* Argillite; from Schneeberg.

o. o. ADHESION TO THE TONGUE.

- 532 Greenish white indurated Clay, which *adheres very strongly to the tongue*; from Leipzig.
 533 Carnation red Lithomarga, which *adheres moderately to the tongue*; from Rochlitz in Saxony.
 534 Yellowish grey, almost Isabella yellow, Tripoli, *somewhat adhering to the tongue*; from Bohemia.
 535 Reddish indurated common Clay, which *adheres slightly to the tongue*; from Saxony.

- 536 Grey compact Limestone, *not at all adhering* to the tongue; from Eisleben.

p. p. THE SOUND.

- 537 A Prismatic Rock Crystal which *resounds* when struck; from Silesia.
538 Red Hematite *destitute of Resonance*; from Eibenstock.

q. q. CRACKLING NOISE OF PARTICLES
WHEN BROKE.

- 539 Apple green common Talc, which *crackles very strongly*; from the Venetian Territories.

B B. Particular generic Characters of the Friable Fossils.

a. The Lustre.

1. Intensity of the Lustre.

- 540 *Glimmering* (and in the Metallic manner) red micaceous Iron Ore; from Giphäuser in Thuringia.
541 *Dull* yellow Earth; from Upper Lusatia.

2. Sort of Lustre.

- 542 Red micaceous Iron Ore, with a *Metallic glimmering*; from Voigtland.
543 Talcite, *glimmering*, in the common manner; from the Sun, near Freiberg.

b. The Appearance of the Particles.

- 544 Iron Ochre, composed of *duffy* Particles; from Wehrau.
545 White Talcite, of *scaly* Particles; from Freiberg.

c. The

c. *The Stain.*

- 546 Red micaceous Iron Ore, which *very strongly stains*; from Voigtland.
 547 *Slightly staining*, yellowish grey calciform Lead Ore; from the Rautenkranz at Johann Georgenstadt.

d. *The Degree of Friability.*

- 548 *Loose*, greenish grey Clay; from Leipzig.
 549 *Coherent*, native Argill; from Halle in Magdeburg.

e. *Adhesion to the Tongue.*

- 550 Yellow Earth, *strongly adhering to the tongue*; from Upper Lusatia.
 551 *Slightly adhering*, Porcelain Earth; from Aue, near Schneeberg.

C C. Particular generic Characters of the Fluid Fossils.

a. *The Lustre.*

- 552 Native Mercury of a *metallic Lustre*, in an Argillaceous Matrix, with much Cinabar; from Stahlberg in Deux Ponts.

C. REMAINING COMMON GENERIC CHARACTERS.

a. *The Unctuousity.*

- 553 Porcelain Earth, which feels *meagre*; from Schneeberg.
 554 Yellow Earth, which feels a *little greasy* in the Clefs; from Upper Lusatia.
 555 A fragment of Steatites, which feels *moderately greasy*; from Bareuth.
 556 Talcite, which feels *very unctuous*; from Freiberg.

b. *The Coldness.*

- 557 Earth Coal (earthy Bituminous Wood) without any perceptible coldness; from Upper Lusatia.
 558 Hammites, which feels but slightly cold; from Bernburg.
 559 Grey Marble, feeling moderately cold; from Bareuth.
 560 A fragment of Rock Crystal, which feels quite cold; from Zinnwald.

c. *The Density.*

- 561 A fragment of Pumice, which floats on water; from Andernach on the Rhine.
 562 Slate Coal, which is light; from Pottschappel,
 563 White Quartz, not remarkably heavy; from Oberschöna, near Freiberg.
 564 Foliated Baroselenite, which is heavy; from Freiberg.
 565 Brown Blende, heavy in an higher degree; from the Hartz.
 566 White Lead Ore, heavy in a still higher degree; from Tschoppau, near Marienberg.
 567 Galena, of very great weight; from Freiberg.
 568 Cinabar, very heavy, in an higher degree; from Idria.
 569 A groupe of crystallized Tin Ore, very heavy, in a still higher degree; from Ehrenfriedersdorf.

d. *The Smell.*1. *Of Itself.*

- 570 Mineral Pitch, with a Bituminous smell; from Switzerland.

2. *By Friction.*

- 571 Swine Stone, which emits an Urinous smell on friction; from Eisleben.
 572 Martial Pyrites, with a sulphureous smell; from Freiberg.

573 Massive

- 573 Massive Arsenical Pyrites, which gives out a *Garlic* smell ; from the same place.
- 574 A fragment of Rock Crystal, which yields an *Emphyreumatic* smell, on friction ; from Bohemia.

c. The Taste.

- 575 Greyish white Fossil Salt, with a *sweetish Saline* taste ; from Wielitzka, in Gallicia.
- 576 Yellowish grey Mountain Butter, on Aluminous Slate, with a *sweetish Astringent* taste ; from Upper Lusatia.
- 577 Vitriolated Iron, with an *harsh* taste.
- 578 Vitriolated Magnesia, with a *bitter Saline* taste.
- 579 Common Saltpetre, with a *cooling Saline* taste.
- 580 Mineral Alkali, with a *Lixivious* taste.

END OF THE CHARACTERISTIC COLLECTION.

- 573 Matteo Antical Pines, which gives out a Green
 smell; from the same place.
 574 A fragment of Rock Crystal, which yields an Eager
 warm smell, on friction; from Bohemia.

THE TALE.

- 575 Greyish white Tuff, with a strong Saline taste;
 from Wiltshire, in England.
 576 Yellowish grey Manganese, from Aluminous Sand,
 with a strong Saline taste; from Upper Lusatia.
 577 Vitreous Iron, with a strong taste.
 578 Vitreous Manganese, with a strong Saline taste.
 579 Compound Sulphur, with a strong Saline taste.
 580 Mineral Acid, with a Saline taste.

END OF THE CHYMIST'S COLLECTION.

SYSTEMATIC COLLECTION.

O.

FIRST CLASS.

EARLY AND STONE.

SYSTEMATIC COLLECTION.

O.

Crystallography is a branch of Natural Philosophy, which treats of the external forms of bodies, and the laws which govern their formation. It is a science which has of late years attracted much of the public attention, and has become one of the most popular branches of knowledge. The study of crystallography is not only interesting in itself, but it is also of great importance in many of the arts and manufactures. The knowledge of the properties of crystals is necessary in the construction of optical instruments, and in the selection of materials for various purposes. The study of crystallography is also of great importance in the study of mineralogy, and in the study of the history of the earth.

H.
SYSTEMATIC COLLECTION.
O.

FIRST CLASS,
EARTHS AND STONES.

1st. SILICEOUS GENUS.

1. DIAMOND.

1. Kirwan, page 393.

a. *Varieties of the Colour.*

- 1 Greyish white Diamond; from Brazil.
- 2 Reddish white Diamond; same place.
- 3 Yellowish brown rose-cut Diamond; from the East Indies.
- 4 Light grass green Diamond; from the same place.

Rem. In N° 3, the peculiar Adamantine Lustre is very obvious.

b. *Varieties of the External Shape.*

- 5 Crystallized Diamond in double Trihædral Pyramids, with convex terminating planes, the angles of their common base obtusely acuminate.
- 6 An Hexhædral Diamond Prism, terminated by three planes, which are set on the alternate lateral edges; the alternate angles truncated, and the lateral planes all convex.

- 7 A similar Diamond Prism, without having the angles truncated, but with the acuminate planes also convex.

c. *Varieties of the Fracture.*

- 8 Two small fragments of Diamond, in which the *plain foliated* fracture is sufficiently evident.

Rem. from N° 5 to 8, are also from the East India.

2. *CHRYSOBERYLL.*

Kirwan, 11th Species. Siliceous Genus.

- 9 A group of Hexahedral Prismatic Chrysoberylls; from Nertschinsk in Siberia.

3. *JARGON.*

1. *Kirwan, page 333.*

a. *Varieties of the Colour.*

- 10 *Greyish white* Jargon, with a yellowish reflection; from Ceylon.
 11 *Very pale*, greyish white Jargon.
 12 *Pale wine yellow* Jargon.
 13 *Full wine yellow* Jargon, reflecting a little Clove brown.
 14 *Greenish grey* Jargon.

b. *Varieties of the External Shape.*

- 15 Crystallized Jargon in rectangular Tetrahedral Prisms, terminated by Tetrahedral Pyramids, the planes of which are set on the planes of the Prism, the edges of the Pyramids bevelled.
 16 Crystallized Jargon in similar Prisms, the alternate lateral edges of which are truncated, but without having the planes of the Pyramid bevelled.
 17 Jargon Crystallized in the foregoing manner, except that all the lateral edges of the Prism, together with the apex of the Pyramid itself, are truncated.

c. *Varieties*

c. *Varieties of the Fracture.*

- 18 A fragment of a Jargon Crystal, in which the *curved foliated* fracture may be observed.

Rem. all these Jargons are from the Island of Ceylon.

4. *HYACINTH.*

1. *Kirwan, page 257.*

a. *Varieties of the Colour.*

- 19 *Pale Clove brown* Hyacinths.
 20 *Light wine yellow* Hyacinth.
 21 *Full wine yellow* Hyacinth.
 22 *Pale Hyacinth red*, ditto, reflecting whitish.
 23 A somewhat *darker*, Hyacinth Pebble.
 24 A Table-cut Hyacinth of a *full* Hyacinth colour.
 25 Several dark *blood red* Hyacinths,

Rem. these might be mistaken for Garnets, but for the other Characters.

b. *Varieties of the External Shape.*

- 26 Hyacinths in small round *grains*.
 27 Hyacinth crystallized in rectangular Tetrahædral Prisms, acuminated by four planes, which are set on the lateral edges of the Prism.
 28 The same Crystal, but the edges of the Pyramids bevelled.
 29 Ditto, without any bevilling, but the edges of the Prism truncated.
 30 Ditto, of the same sort, but with shorter Prisms.
 31 Hyacinth crystallized in moderately short and small Hexhædral Prisms, terminated by three planes, set on the lateral edges.

c. *Varieties*

c. *Varieties of the remaining Characters.*

- 32 Fragments of Hyacinth, in which the *foliated* fracture is very obvious.
- 33 A quantity of small Hyacinths, of different degrees of transparency.

Rem. all these from Ceylon.

5. CHRYSOLITE.

Kirwan, 12th Spec. Silic. Gen.

a. *Varieties of the Colour.*

- 34 A Chrysolite Pebble, of an imperfect *Mountain green* colour, inclining to *Verdigris green*; from the East Indies.
- 35 A *pale grass green*, brilliant-cut Chrysolite; from the Brazils.
- 36 A brilliant-cut Chrysolite, of an intermediate colour between *Asparagus* and *Olive green*; from the same place.
- 37 A similar one, larger, and of a somewhat *darker* colour; from the same place.
- 38 An *Olive green*, polished Chrysolite; from the East Indies.
- 39 A brilliant-cut Chrysolite, whose colour inclines very strongly from the *Olive green*, to the *full wine yellow* (a transition to Topaz); from the same place.

b. *Varieties of the External Shape.*

- 40 *Massive* Chrysolite in Basalt; from Schwerda in Bohemia.
- 41 *Disseminated* ditto, in Basalt with Hornblende; from Upper Lusatia.
- 42 A roundish Chrysolite *pebble*; from the East Indies.
- 43 Rectangular Tetrahædral Prismatic Chrysolite Crystals; from Siberia.

c. *Varieties of the other characters.*

- 44 Fragments of Chrysolite, wherein the *conchoidal* fracture is very distinct; from the same place.

d. *Alterations.*

- 45 *Slightly decomposed* Chrysolite, thickly disseminated in Basalt; from Windheim near Kalten Nordheim.
 46 Chrysolite *completely decomposed* into Iron Ochre, in Basalt; from Unkelstein between Nimeguen and Oberwinter.

6. GARNET.

Kirwan, 10th Spec. Silic. Gen.

a. *Varieties of the Colour.*

- 47 *Dark brownish Black* Garnets, accompanied with some Calcareous Spar and much variegated Vitreous Copper Ore intermixed; from the Simon Judä Stockwerk at Dognozka in the Bannat.
 48 *Dark crimson red*, inclining to *black*, Garnets; from Hungary.
 49 A *full blood red* fragment of Massive Garnet, reflecting *Hyacinth red*; from Tyrol.
 50 *Brownish red* Garnets, accompanied with a little Quartz; from Sweden.
 51 Garnet, inclining from the *reddish brown* into *yellowish brown*.
 52 Garnet, of a somewhat muddy *Hyacinth red* colour, disseminated in Hornblende Slate, with a little Copper Pyrites; from Garpenberg in Sweden.
 53 Massive Garnet, whose colour is almost intermediate between *Hyacinth red* and *Olive green*; from Saxony.
 54 *Clear olive green*, inclining to *yellowish*, Garnet, with some Calcareous Spar; from Orbiz in the Bannat.
 55 *Perfect olive green* Garnet, with some Calcareous Spar; from the same place.

56 *Dark*

- 56 *Dark olive, passing into blackish green, Garnet, with some black Blende; from Saxony.*

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 57 *Massive Garnet, in Hornblende Slate; from Norway.*
 58 *Coarsely disseminated Garnet, with Massive Quartz, in Hornblende Slate; from the same place.*
 59 *Garnet, in inhering grains in Serpentine; from Zöbliz, near Marienberg in Saxony.*
 60 *Garnet, in moderately large, round, loose grains, the size of small birds eggs; from Hungary.*
 61 *Ditto, in small grains; from Saxony.*
 62 *Ditto, in very small grains; from Bohemia.*
 63 *Ditto, in sharp cornered fragments.*

b. b. The Regular External Shape.

- 64 *A large Hexhædral Prism of Garnet, terminated at one extremity by three planes, which are set on the lateral edges; from Siffliz in Carinthia.*
 65 *The same crystallization of Garnet, the termination at both ends more distinct, of a middling size, and coated with a rind of Talc; from Sweden.*
 66 *Ditto, but the proportion of the thickness of the Prism to its height is considerably smaller, and the lateral planes somewhat rough; from the same place.*
 67 *Ditto, but with somewhat more obtuse acuminations and perfectly smooth planes; from Steiermark.*
 68 *Similar small Garnets, in decayed Gneiss; from Wiefenthal in the Erzgebirge.*
 69 *Crystallized Garnet in similar Prisms, all the edges slightly truncated, with a little overlaying Mica; from Saida in Saxony.*
 70 *Crystallized Garnet of a middling size, in double Octohædral Pyramids, terminated at both extremities by four planes; from Berggieshübel.*
 71 *Ditto, but small; from the same place.*
 72 *Garnet similarly crystallized, but so that the planes of the primary figure are smaller than those of the modification,*

cation, and the Pyramids themselves are very small; from Schonbrunn near Frankenberg.

- 73 Crystallized Garnet in double Tetrahædral Pyramids, all the angles deeply truncated; from Saida.

c. Varieties of the Internal Lustre.

- 74 Some red Garnets having a *strong* internal lustre; from Bohemia.
75 Green garnet with a *slight* lustre; from the Christopher at Breitenbrunn.

d. Varieties of the Fracture.

- 76 Garnet with a *fine grained uneven* fracture, in Hornblende; from Saxony.
77 Green Garnet with a *minute conchoidal* fracture; from Arendal in Norway.
78 Red Garnet with a *flat and perfectly conchoidal* fracture; from Bohemia.

e. Varieties of the Transparency.

- 79 Red Garnet, *quite transparent*, yet somewhat approaching the semitransparent; from Bilin in Bohemia.
80 Red Garnet *strongly translucent at the edges*, in Hornblende Slate; from Sweden.
81 *Perfectly opaque* Garnet, in Micaceous Hornblende; from Schwarzenberg.

f. Varieties of the Distinct Concretions,

- 82 Green Garnet of *small, almost fine grained*, distinct concretions; from Schneeberg.
83 Reddish brown, almost Hyacinth red Garnet, of moderately *thick Lamellar* distinct concretions; from the East Indies.

7. RUBY.

7. RUBY.

Kirwan, 7th Spec. Silic. Gen.

a. Varieties of the Colour.

- 84 A dark crimson red Ruby.
- 85 A full crimson red, inclining a little to violet blue, brilliant-cut Ruby.
- 86 A perfect crimson red Ruby, with a slight shade of blue.
- 87 Two very completely crimson red Rubies.
- 88 Somewhat deeper, crimson red Ruby.
- 89 A Ruby of an intermediate colour between crimson and carmine red.
- 90 A perfectly deep carmine red Ruby.
- 91 A paler carmine red ditto.
- 92 A carmine red Ruby, sprinkled with white.
- 93 Two very pale reddish white Rubies.
- 94 Light rose red Ruby.
- 95 A Ruby of an intermediate colour between rose red and violet blue (transition to Sapphire).
- 96 Red and white, also somewhat yellowish streaked, Ruby.
Rem., a rare variety.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 97 Two Ruby Pebbles the size of peas.

b. b. The Regular External Shape.

- 98 Two Rubies crystallized in small, perfect, double Tetrahædral Pyramids.
- 99 A Ruby crystallized in the same manner, under perfectly sharp, and equal, edges and angles, yet very small.
- 100 A Ruby crystallized in a similar manner, but one Pyramid is set somewhat obliquely on the other.
- 101 Ditto, only with the angles formed by the planes, somewhat more oblique, and also on the whole smaller.
- 102 Crystallized

- 102 Crystallized Ruby, in small rectangular Tetrahedral Prisms with Dihedral summits, the planes of which are set on the two opposite lateral edges.
- 103 A similar Ruby Crystal, only very small and the summit more distinct.
- 104 Ruby crystallized in the same manner, but all the edges except those on which the faces of the summit are set, truncated.
- 105 Ruby crystallized in single Trihedral Pyramids, of which all the angles of the base, together with the Apex, are deeply truncated, and two adhere together by their bases forming a macle or double Crystal.
- 106 Ruby crystallized in a perfectly similar manner, only the Pyramids are still much shorter, and one is scarcely obvious.

Rem. at first sight this has perfectly the appearance of a Trihedral table.

c. Varieties of the Fracture.

- 107 Fragments of Ruby, in which the *conchoidal* transverse fracture is discernible.
- 108 Another fragment of Ruby, which broken in a different direction, perpendicular to the foregoing, exhibits a *foliated* fracture.

Rem. these Rubies are all from the East Indies.

3. SAPHIRE.

Kirwan, 3d Family 6th Spec. Silic. Gen.

a. Varieties of the Colour.

- 109 A deep violet blue, brilliant-cut Sapphire.
- 110 Ditto, of a paler colour.
- 111 A Table-cut white Sapphire with bluish reflections.
- Rem.* these three are perfectly pure, and free from flaws.
- 112 Sapphire with reflections passing from white to bluish, on one side, and from blue into black on the other.
- 113 A table-cut Sapphire of an intermediate colour between Indigo and Smalt blue.

- 114 A brilliant-cut Sapphire of an *Indigo blue* colour.
 115 A small Sapphire, at first sight *Azure blue*, but held towards the light, it appears *dark grass green*.

b. Varieties of the External Shape.

- 116 Two small Sapphire *Pebbles*..
 117 Sapphire crystallized in long and small, very acute Hexhædral Pyramids, with the apices deeply truncated (therefore often considered as Prisms.)

c. Varieties of the Transparency.

- 118 A perfectly transparent rose-cut Sapphire.
 119 A semitransparent rough Sapphire.
 120 A faintly translucent, but when held towards the light, strongly translucent Sapphire.

d. Varieties of the Fracture.

- 121 Separate fragments of Sapphire, which exhibit a *curved foliated fracture*.

Rem. all these Sapphires are from the East Indies and very probably from Ceylon.

9. TOPAZ.

Kirwan, 8th Spec. Silic. Gen.

A. Common Topaz.

a. Varieties of the Colour.

- 122 *Greyish white* Massive Topaz, with Tinstone and Arsenical Pyrites, in Quartz, upon Gneiss; from Ehrenfriedersdorf.
 123 Somewhat darker *greyish white* Topaz, in Topaz Rock; from Schneckenstein beside Auerbach in Voigtland.
 124 *Yellowish white* Massive Topaz, with the same, *wine yellow* and *greyish white*, in Topaz Rock; from the same place.

125 A very

- 125 A very pale wine yellow Topaz Crystal, from ditto.
 126 Clear wine yellow Topaz Crystal.
 127 The same of a somewhat darker colour.
 128 Perfectly wine yellow Topaz Crystal.
 129 A full wine yellow, Brilliant-cut Topaz Crystal.
Rem. from No. 126—129 also from Schneckenstein.
 130 A Lemon yellow, Brilliant-cut Topaz ; from the Brazils.
 131 Two Topazes strongly inclining to red ; from the same place.

Rem. I strongly suspect these last have been exposed to heat.

b. Varieties of the External Shape.

- 132 Massive Topaz, with the same, crystallized, as also some Fluor Spar and much Arsenical Pyrites in Quartz ; from Ehrenfriedersdorf.
 133 Disseminated Topaz, with the same, crystallized, in Quartz intermixed with Arsenical Pyrites ; from Geier.
 134 An Octohædral Topaz Prism of a middling size, in which two pair of the lateral planes meet under very obtuse angles, the terminating edges of these pairs of lateral planes are bevelled, the angles of the two opposite acute lateral edges are truncated, and the three angles belonging to each of the large truncating planes, are also truncated ; from Schneckenstein in Voigtland.
 135 Ditto, but so washed by water, that all the edges appear rounded off ; from the Eibenstock Streamworks.
 136 Topaz crystallized in similar Prisms, only smaller.
 137 Ditto, but with this variation, that the proportion of the breadth to the height of the Prism is smaller ; from the same place.
 138 Small Topaz Crystals formed in the same proportion, in which the truncating and bevelling planes at the extremity become so large, that very little of the extreme plane itself is to be seen ; from the same place.
 139 A Rectangular Tetrahædral Topaz Prism, terminated at one end by eight planes ; from the Brazils.

Rem. two of these planes are very small, and the Crystal evidently originates from the former, since the alternating obtuse angles of the sides of the Prism approach so near to a plain, that they become evanescent.

- 140 A similar Tetrahædral Prismatic Topaz Crystal, in which the extremity is indeed broken, but so much is evident, that no Apex had existed; from the same place.
- 141 Topaz crystallized, in small Octohædral Prisms, in which likewise no modifications of the extremities can be observed, in a small Quartz groupe; from Schneckenstein.
- 142 Topaz crystallized, in macles of this kind, wherein however the extremities exhibit some planes tending towards a modification, and the Prisms cohere by their lateral planes; from the Brazils.

c. *Varieties of the Fracture.*

- 143 A fragment of Topaz exhibiting laterally, a *foliated*, but otherwise a *conchoidal*, transverse fracture; from the same place.

d. *Varieties of the Distinct Concretions.*

- 144 Massive Topaz with *small granular* distinct concretions, in Topaz Rock; from Schneckenstein.

B. *Aqua Marine.*

Kirwan, 3d Variety 2d Family 8th Spec. Silic. Gen.

- 145 An Aquamarine Pebble, of a *pale mountain green* colour, which still exhibits some vestiges of a crystalline form; from Eibenstock.
- 146 Two Trapezoidal fragments of Aqua Marine, in which the *plain foliated* fracture, together with *Lamellar* distinct concretions, are distinguishable.

10. EMERALD.

Kirwan, 3d Spec. Silic. Gen.

- 147 *Dark grass green*, table-cut Emerald.
- 148 *Perfectly grass green* ditto.
- 149 *Deep grass green* ditto, entirely free from flaws.
- 150 Ditto, with many distinguishable flaws in it.

H

151 *Pale*

- 151 *Pale apple green*, clear and transparent Emerald.
- 152 A smaller, brilliant-cut, perfectly clear Emerald, of an intermediate colour between *grass* and *apple green*.
- 153 A fragment of a Prismatic Emerald Crystal which must have been at least of middling size, and in which the *compact*, and indeed *conchoidal*, both longitudinal and transverse fracture is remarkable.

Rem. these are all from the East.

11. BERYLL.

Kirwan, 4th Spec. Silic. Gen.

a. Varieties of the Colour.

- 154 *Olive green*, somewhat inclining to *Asparagus green*, Beryll.
- 155 *Pale greenish white* Beryll.
- 156 *Very pale greenish white* ditto.
- 157 *An apple green* ditto.
- 158 *A pale mountain green* ditto.
- 159 Beryll, with reflections passing from the *mountain green* into *sky blue*.
- 160 *Verdigris green* Beryll.
- 161 A very beautiful *sky blue* Beryll.

b. Varieties of the External Shape.

- 162 Crystallized Beryll, in a perfect Hexhædral Prism of a middling size, penetrating a Prism of Rock Crystal.
- 163 Two Beryll Crystals of this kind, maced, so inhering in one another, that they together seem but one Hexhædral Prism, and it is only possible in one spot to discover the place where they are united by their lateral planes.
- 164 Several ditto, of a middling size.
- 165 Hexhædral Prismatic Berylls adhering partly to, and partly through each other, forming an entire groupe, but the Prisms are smaller and more slender than the preceding.
- 166 An Hexhædral Beryll Prism, in which, three alternating lateral planes are notably broader than the other three.

c. Varieties

c. *Varieties of the External Surfaces.*

- 167 A Prismatic Beryll Crystal, with surfaces very *strongly streaked*.
 168 Another Beryll Crystal, with *smooth* surfaces.

d. *Varieties of the Transparency.*

- 169 A *perfectly transparent* Beryll Crystal.
 170 *Strongly translucent*, small Beryll Prisms, intermixed with Quartz, and indurated Clay; from Johann Georgenstadt.

Rem. the Berylls from No. 154—169 are all from Siberia and are found there in the Granite mountain *Adontsibolo* on the confines of China.

12. SCHÖRL.

A. *Black Schörl.*

Kirwan, 15th Spec. Silic. Gen.

a. *Varieties of the Colour.*

- 171 *Perfectly dark black* crystallized Schörl, in the same, Massive, which is intermixed with some Quartz; from the Eibenstock stream-works.
 172 *Very dark greyish black* Schörl, with a little overlaying Clay; from the same place.

b. *Varieties of the External Shape.*a. a. *The Common External Shape.*

- 173 *Massive* black Schörl, in Felspar; from Siebenlehn near Freiberg.
 174 Partly *Massive*, and partly *coarsely disseminated*, Schörl, in Quartz; from the Eibenstock stream-works.
 175 A fragment of a black Schörl *Pebble*, traversed by small veins of Quartz; from the same place.

b. b. *Regular External Shapes.*

- 176 Crystallized black Schörl in perfect Trihædral Prisms, with the ends broken off, traversed by much white Quartz,

- Quartz, hence the former, at a distance, has entirely the appearance of a coal; from the same place.
- 177 Crystallized black Schörl in small, Hexahedral, similar Prisms, from the same place.
- 178 Similarly crystallized ditto, but with a smaller difference between the diameter of the Prisms and their height, with a little Iron-shot clay; from the same place.
- 179 Crystallized black Schörl, forming a Nonahedral Prism, terminated by a Trihedral summit, which has this peculiarity, that it is completely broken on one side, hence only four of the lateral planes, and two of the terminating planes are visible, on the broken side a new one had begun to crystallize, the crystallization of which however is not perfected, besides, its lateral planes are completely smooth and specular; from the same place.
- 180 Similarly crystallized ditto, but not broken, therefore distinct, the Prisms of which however have unequal angles; from the same place.
- 181 Crystallized black Schörl, in similar Nonahedral Prisms, of which six planes are notably broader than the other three, the Prisms themselves are proportionally slenderer and the terminations, as before, in Iron-shot Quartz; from Sonnenberg at Andreasberg.
- 182 Crystallized black Schörl, in nearly equilateral, extremely obtuse, though equiangular, Nonahedral Prisms, which therefore appear nearly cylindrical and their extremities are not very conspicuous, in Granite; from Seibenlehn near Freiberg.
- 183 Black Schörl crystallized in similar, though not so regular, in some places dilated, Prisms, in Hornblende intermixed with Talc; from Zillerthal.

c. Varieties of the Fracture.

- 184 A fragment of black Schörl, of a *minute conchoidal* transverse fracture; from the Eibenstock stream-works.
- 185 A fragment of black Schörl in Quartz, whose Longitudinal fracture has a tolerably *foliated* texture; from Freiberg.

d. Varieties

d. Varieties of the distinct Concretions.

- 186 Massive black Schörl, with *slender columnar* distinct Concretions, on Gneiss; from Hilbersdorf, near Freiberg.
- 187 Similar *thick columnar* black Schörl, wherein the columns are again accumulated in large grains, in Quartz; from Schneeberg.
- 188 Massive black Schörl, in which the *columnar* distinct Concretions, are aggregated both scopiformly and in oblong grains, and these oblong granular ones intersect each other at right angles in some places, in Felspar; from Siebenlehn, near Freiberg.

B. Tourmaline.

Kirwan, 16th Spec. Silic. Gen.

a. Varieties of the Colour.

- 189 Greyish, almost dark black, Tourmaline; from Saxony.
- 190 Dark grass green Tourmaline; from the Brazils.
- 191 Tourmaline, passing from, green to brownish, from Ceylon.
- 192 Yellowish brown, but when held towards the light, dark Crimson red, Tourmaline; from the same place.

b. Varieties of the External Form.

- 193 Tourmaline in blunt cornered fragments; from Ceylon.
- 194 Crystallized ditto, in long Nonahædral Prisms, with the extremities broken off, in Slaty Talc, from the Greiner in Zillerthal.
- 195 Ditto, in perfect Hexhædral Prisms, in Talc; from the same place.
- 196 Tourmaline Crystallized, in rather short, Trihædral Prisms; from ditto.
- 197 Tourmaline Crystallized in Rhomboidal, curved, Tetrahædral Prisms of a middle size, in Talc; from the same place.

c. Varieties

c. *Varieties of the Fracture.*

- 198^a. Some broken Tourmaline Crystals, of a minute Conchoidal and strong glistening internal appearance, in small grained Talc; from the same place.

13. SCHÖRLITE.

Kirwan, 25th Spec. Silic. Gen.

- 198^b. *Yellowish white* Schörlite, in a mixture of Quartz and Mica, from the Altenberg Stockwork.
 199 Partly *yellowish*, partly *greenish white*, Massive, and in some places prismatic crystallized, Schörlite, in the same mixture; from the same place.
 200 *Coarsely disseminated* Schörlite, in a mixture of Quartz, and a large quantity of Mica; from the same place.

14. THUMERSTONE.

Kirwan, 17th Spec. Silic. Gen.

- 201^a. *Massive* Thumerstone of a *Clove brown* colour, slightly inclining to *Violet blue*, in a mixture of Calcareous Spar with some Argillite; from Schneeberg.
 201^b. *Clove brown* crystallized Thumerstone, in somewhat lengthened Rhombs, with truncated edges; from Dauphiné.
 202 Ditto, similarly crystallized in broader Rhombs, with edges more deeply truncated, the Crystals penetrating each other; from the same place.

15. QUARTZ.

A. *Amethyst.*

Kirwan, 2d Spec. Silic. Gen.

a. *Varieties of the Colour.*

- 203 *Pale yellowish*, nearly *pure white*, Amethyst; from Wiesenbad, near Annaberg in the Erzgebirge.
 204 *Greyish*

- 204 *Greyish white* crystallized Amethyst, on Violet blue ditto, and cellular common Quartz; from the Hordiz in Hungary.
- 205 *Rose red* Amethyst, traversed by white streaks.
- 206 *Very light Violet blue* Amethyst; from Ceylon.
- 207 *Pale Violet blue* ditto; from the same place.
- 208 *Full Violet blue*, Brilliant-cut Amethyst, from Ceylon.
- 209 Rather dark *Violet blue* Amethyst, in Calcedony; from the Palatinate.
- 210 *Very dark Violet blue* Amethyst; from Ceylon.
- 211 *Grass green* Amethyst; from the County of Glaz.
- 212 A large polished fragment of Amethyst, which in the separations of the distinct Concretions, displays *Iridescent colours*, in a mixture of much common Quartz and Hornstone; from Deux Ponts.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 213 *Massive* Amethyst, in a Calcedony Spheroid, with Quartz, and Calcedony overlaying the Crystals; from the same place.
- 214 An oblong white Amethyst, *Pebble*; from the Pleiss.
- 215 More spherical, Violet blue Amethyst *Pebbles*; from the East.

b. b. The Regular External Shape.

- 216 Crystallized Amethyst, in single, perfect Hexhædral Pyramids, on the same, Massive, with adhering Jasper, which rests on Calcedony; from Deux Ponts.
- 217 Ditto, in rather larger, similar Hexhædral Pyramids, with this modification, that two pair of their planes are notably broader than the others, therefore the whole ends in an edge, on Calcedony, containing some Flint; from the same place.
- 218 Ditto, with alternate larger lateral planes, upon decayed Gneiss; from Drehbach, near Ehrenfriedersdorf, in the Erzgebirge.
- 219 Ditto, the bases of which discover the commencement of Prisms, upon Flint; from Deux Ponts.

220 Amethyst

- 220 Amethyst crystallized in similar Pyramids, of a middling size, partly aggregated in buds, on Calcedony, to which decayed green earth adheres; from the same place.
- 221 Amethyst crystallized in Hexahedral Prisms, terminated by six planes, set on the lateral planes, upon decayed Gneiss; from Drehbach.
- 222 Crystallized Violet blue Amethyst, in rather thicker, similar Prisms, with the alternate acuminate planes much larger, on the same, white, with a coating of very small Sparry Iron Ore Crystals, which universally cover but one half of the Prisms, and that in the same direction; from Schemnitz in Hungary.

c. Varieties of the Fracture.

- 223 Pale violet blue Amethyst, with a *minute Conchoidal* fracture, and mixed with some Quartz; from the Hodriz.
- 224 White Amethyst, which is intermediate between the *coarse splintery* and *fibrous*, with adhering Violet blue ditto; from the Confines of Bohemia.
- 225 Very delicately and slightly diverging *fibrous*, white Amethyst, with adhering violet blue ditto; from the same place.
- 226 Scopiformly diverging, *coarse fibrous* Amethyst; from Heidelberg.

d. Varieties of the Distinct Concretions.

a. a. Granular Distinct Concretions.

- 227 Violet blue Amethyst, of *coarse Granular* distinct concretions; from the same place.
- 228 A fragment of Amethyst, with at the same time *granular*, and imperfectly *columnar*, distinct concretions; from the same place.

b. b. Columnar Distinct Concretions.

- 229 Greyish white Amethyst, of *slender columnar* distinct concretions, with investing and inlaying Calcareous Spar,

Spar, in a Calcedony spheroid, which is coated with green earth; from Deux Ponts.

- 230 Dark violet blue Amethyst, of *thick columnar*, but somewhat lamellar, distinct Concretions; from Schneeberg.

c. c. Lamellar Distinct Concretions.

- 231 Massive Amethyst, of *thick lamellar* distinct Concretions, with inlaying Jasper, and adhering common Quartz; from the Palatinate.
- 232 Amethyst of tolerable thick and fortification-like curved *lamellar*, distinct Concretions, with adhering common Quartz, in which a little Jasper occurs; from the same place.

e. Varieties of the Transparency.

- 233 A *perfectly transparent* polished Amethyst; from Deux Ponts.
- 234 Greyish white, spotted with Violet blue, *semi transparent* Amethyst; from the same place.
- 235 A fragment of *strongly translucent* Amethyst; from Heidelberg.
- 236 Darker Amethyst, *slightly translucent*; from the same place.

B. Rock Crystal.

Kirwan, 1st Fam. 1st Spec. Silic. Gen.

a. Varieties of the Colour.

a. a. White.

- 237 *Perfectly pure white* Rock Crystal; from Prieborn in Silesia.
- 238 *Greyish white* Rock Crystal; from Bohemia.
- 239 *Yellowish white* Rock Crystal; from the same place.

b. b. Yellow.

- 240 *Perfectly wine yellow* Rock Crystal; from the same place.
 241 *A full wine yellow*, reflecting brownish, Rock Crystal, with adhering common Quartz; from Haselland in the Canton of Berne.

c. c. Brown.

- 242 *Very pale, Clove brown* Rock Crystal, with a rind of common Quartz, in which a little Amethyst and Mica occur; from Zinnwald in Bohemia.
 243 *Very beautiful Clove brown* Rock Crystal, (Smoky Topaz); from the same place.
 244 *Very dark brown, nearly black*, Rock Crystal, (Morion); from the same place.

d. d. Red.

- 245 *Pale Rose red* Rock Crystal.

Rem. The rarest Variety.

e. e. Variegated Colours.

- 246 *Pearl grey* Rock Crystal, internally reflecting *Clove brown*.
 247 *Brown* Rock Crystal, reflecting *Iridescent colours* in the fissures of the recent Fracture; from Zinnwald in Bohemia.
 248 *Pure white* Rock Crystal, internally reflecting *Iridescent colours*; from Switzerland.

*b. Varieties of the External Shape.**a. a. Common external Shape.*

- 249 *Massive* Rock Crystal, with Amethyst and common Quartz, in Porphyry; from Upper Lusatia.

250 Small

- 250 Small irregular Rock Crystal *Pebbles*; from the Leipzig Sandpits.
- 251 Perfectly *ovoidal* Rock Crystal *Pebbles*; from the same place.
- 252 An oblong *cylindrical* Rock Crystal *Pebble*, wherein the primitive prismatic figure may still be recognised; from Zabeltitz near Grossenhain.
- 253 A similar *conical Pebble*, with edges still perceptible; from the same place.
- 254 A somewhat *oblate, spheroidal* Rock Crystal *Pebble*, which seems to have been pyramidal, traversed in the middle at right angles, by Tourmaline Crystals; from the Upper Lusatia.
- 255 A similar, smaller, less compressed Rock Crystal *Pebble*, with numerous small Tourmaline Crystals; from the same place.

b, b. The regular External Figure.

a. Prisms.

a. a. Varieties of the lateral and acuminate Planes.

- 256 Crystallized Rock Crystal, in small Hexhædral Prisms regularly terminated by six planes, set on the lateral planes, forming a groupe, upon Ironshot Hornstone; from Schneeberg.
- 257 A fragment of a large Hexhædral Prism, terminated by six planes like the foregoing, except that one is notably smaller than the five others; from Voigtland.
- 258 A similar Crystal of ditto, but of middling size, in which the acumination of each extremity is perfectly distinct; from Berne.
- 259 A fragment of a large Hexhædral Prism of ditto, terminated like the foregoing by six planes, but in which two of the lateral planes are notably narrower than the others, penetrated by an extraordinary quantity of black Schörl, therefore the termination is very indistinct; from Bohemia.

- 260a. Similarly crystallized brown ditto, but small, and with two very remarkably small, three of a middling size, and one large, terminating plane; from Hasel-land in the Canton of Berne
- 260b. Single, similar Rock Crystals, inhering on and in calcareous Spar, which is intermixed with indurated Iron Ochre.
261. A purely white, perfectly transparent Hexhædral Prism of Rock Crystal, of a middling size, with one extraordinarily large acuminating plane, set on the narrowest of the lateral planes; from Switzerland.
262. Crystallized Rock Crystal, in slenderer, similar, small Prisms; from Ehrenfriedersdorf.
263. Hexhædral prismatic, and of middling size, crystallized Rock Crystal, with alternate large lateral planes and two opposite large terminating planes, of which one is set on the narrower lateral plane; from Silesia.
264. Ditto, but the difference between the lateral planes is much more considerable, and all the acuminating planes are unequal, the largest being opposite to the smallest; from Berne.
265. A similar Prism of Rock Crystal acuminated by six planes, which terminate in a horizontal edge; from the same place.
266. A similar Crystallization, but the edge inclines towards the horizon, under an angle of nearly 20° ; from the same place.
267. Similarly crystallized Rock Crystal, but with three large acuminating planes, of which two touch each other, and have an adventitious Rhomboidal acuminating plane between them, the third lays opposite; from Switzerland.
268. Crystallized Rock Crystal, in smaller and proportionally thicker Prisms, in which the three smallest planes are scarcely discernible; from Silesia.
269. Crystallized Rock Crystal, in similar Prisms, with a circular aperture descending perpendicularly, in the only large acuminating plane; from Switzerland.
270. Similarly crystallized Rock Crystal, though somewhat deformed by the vestige of another Crystal, which had formerly traversed it.

271. Cry-

- 271 Crystallized Rock Crystal, in proportionally thicker and shorter Prisms, with nearly equal acuminating planes; from Strasberg in the Hartz.
- 272 Crystallized Rock Crystal, in small similar Prisms, wherein the acuminating planes originate almost from the base of the Prisms; from Marmarosa in Upper Hungary.
- 273 Crystallized Rock Crystal of the same kind, but forming doubled and trebled Crystals; from the same place.
- 274 Rock Crystal uniformly crystallized in small Hexhædral somewhat longer Prisms, with two broad lateral and acuminating planes; from the same place.
- 275 Rock Crystal in similar shorter Prisms, in which the disproportion in the breadth of the planes, is more considerable.
- 276 The same, but with two very broad planes, therefore the whole has a tabular shape, and the acuminations terminates in an edge; from Bohemia.
- 277 A detached Rock Crystal of the foregoing kind, but still more tabularly shaped; from Marmarosa.
- 278 Crystallized Rock Crystal, in small Hexhædral Prisms, with four equal, but two lateral planes so narrow, that they appear tetrahædral; from Prieborn in Silesia.

β. β. Varieties of Aggregation, and Origin of certain Deformities.

- 279 Crystallized Rock Crystal, in loose, accumulated Prisms, visible at both ends, with two large lateral planes, which however are unequal; from Prieborn in Silesia.
- 280 An Hexhædral Rock Crystal Prism, terminated at one end, by two large contiguous planes, and at the other, by one very large, and five small planes; from the same place.
- 281 A small Hexhædral Rock Crystal Prism, in which three alternate lateral planes, are very small, and the acuminating planes are in the same proportion; from the same place.
- 282 A genuine Pentahædral Rock Crystal Prism, with the Vestiges of the usual acuminating planes at one extremity, but so small, that four of them represent truncations

- truncations of the extreme edges, and the other two, a very obtuse edge; from the same place.
- 283 Four solitary Rock Crystal Prisms, dissimilarly acuminate at both ends; from Krummendorf in Silesia.
- 284 Unequally sided Rock Crystal Prisms, adhering to each other by their lateral planes, as macles; from the same place.
- 285 Two Rock Crystals, adhering to each other by their terminating planes, as a Scepter Crystal; from Switzerland.
- 286 Similar, but indistinct, adhering Prisms; from Silesia.
- 287 Two adhering Rock Crystal Prisms, wherein the apex of the one, penetrates the base of the other, though but indistinctly; from the same place.
- 288 Two adhering Rock Crystal Prisms but so indistinct, that they appear quite dilated.
- 289 A perfectly similar Rock Crystal, but extremely indistinct, the slightly dilated Prism presenting a somewhat pyramidal shape.

Rem. This suite from No. 286 to 289, demonstrates perfectly, that the dilated form of this Crystal, occurs only in the case of the apex of one Crystal, inhering in the base of the other, and united with it so closely, that the joining is indistinct, and likewise the dilated Crystal forms a remarkable transition to the following Crystallization.

β. Pyramids.

α. α. Varieties of their Terminations.

- 290 Crystallized Rock Crystal, in very acute Hexhædral Pyramids, a second time, and more obtusely, acuminate by six planes; from Silesia.
- 291 Crystallized Rock Crystal, in a very acute Hexhædral Pyramid, acuminate at both extremities, but broken at the upper; from the same place.
- 292 Crystallized Rock Crystal, in a very acute Hexhædral Pyramid, with two very small acuminate planes; from the same place.
- 293 Crystallized Rock Crystal, in a very acute Hexhædral Pyramid, with five nearly equal, but one somewhat larger, acuminate plane.
- 294 A similar Rock Crystal, with one casual acuminate plane additional, and the lateral planes, inclined to the base under small angles; from the same place.

295 Rock

- 295 Rock Crystal, crystallized in the same manner, but with one large, three middling, and two small lateral planes, and alternate equal acuminating planes.
- 296 Rock Crystal, similarly crystallized, with two very small acuminating planes.
- 297 Rock Crystal, crystallized in the same manner, with very acutely converging, and three very striking, acuminating planes.
- 298 An unequal sided, Rock Crystal Pyramid, which is actually acuminated by three planes only, set on the narrow lateral planes.
- 299 Crystallized Rock Crystal, in long Pyramids, so dissimilarly acuminated at both extremities, that the larger acuminating planes at the apex, lie opposite to the smaller at the base.
- 300 The foregoing variety, with alternate equal acuminating planes, but so, that universally the larger at the apex, lie opposite to the smaller, at the base, and vice versa.
- 301 Crystallized Rock Crystal, in Hexhædral Pyramids, terminated at the apex by three very large alternate planes, and at the base by four nearly equal, and only two larger planes.
- 302 The foregoing variety, with one large, two small, and three very small, acuminating planes at the apex, and apparently, with a triple successive acumination at the base, which produces the appearance of a triple Crystal, and proves that the whole results from two Crystals set upon one another.

β. β. Varieties of the lateral Planes.

- 303 Rock Crystal crystallized in Hexhædral Pyramids, with two extremely narrow lateral planes, and broken acuminations.
- 304 Similarly crystallized Rock Crystal with one remarkably narrow lateral plane, and the usual acuminations.
- 305 Rock Crystal, in an Hexhædral Pyramid, with two broad, one intermediate, the narrowest, and three other narrow lateral planes.
- 306 The same variety, with two pre-eminently broad lateral planes, and one singularly large acuminating plane.

γ. γ. Other

γ. γ. *Other Varieties.*

- 307 Rock Crystal, in very acute Hexhædral Pyramids, acuminated at the apex by three, and at the base by six planes.

Rem. From 290 to this are of a middling size, and from Silesia.

- 308 Small Pyramidal Rock Crystals, partly adhering by the lateral planes, and partly penetrating each other; from Stollberg in the Hartz.

- 309 Rock Crystal, crystallized in small, almost very small, equilateral double Hexhædral Pyramids, with the edges of their common base truncated.

- 310 Rock Crystal, crystallized in alternately Equilateral Hexhædral Pyramids of the same variety, with several very small ditto, in a Spheroid of Marlaceous compact Limestone; from France.

Rem. This specimen contains also a beautiful Tabular Crystal, similar to No. 277, and is besides remarkable on account of the mixture.

c. *Varieties of the Fracture.*

- 311 Brown Rock Crystal, with a *perfect flat conchoidal fracture*; from Siberia.

- 312 A similar piece, with a *perfect and minute conchoidal fracture*; from the same place.

- 313 Fragments of white Rock Crystal, with large elevations and depressions in the conchoidal line of fracture; from Bohemia.

d. *Varieties of the Transparency.*

- 314 A fragment of brown Rock Crystal, in *the highest degree transparent*, which is the more remarkable, as the specimen is nearly three inches thick; from Siberia.

- 315 A thin, yellowish white, *perfectly transparent*, polished piece of Rock Crystal; from Bohemia.

- 316 A *semi-transparent* Rock Crystal Pebble; from Upper Lusatia.

A. *Common*

C. Common Quartz.

Kirwan, 2d Family 1st Spec. Silic. Gen.

a. Varieties of the Colour.

a. a. White.

- 317 *Pure white* common Quartz, intermixed with some Fluor and Calcareous Spar, and also Galena; from Gerisdorf.
- 318 *Pale reddish white* crystallized Quartz, on Calcareous Spar, intermixed with some Fluor Spar; from the same place.
- 319 *Perfectly pale greenish white* Quartz, strewed over with a quantity of Minute Crystals of Martial Pyrites; from Freiberg.
- 320 *Somewhat darker, greyish white* Quartz, traversed by Galena; from the same place.

b. b. Grey.

- 321 *Light smoke grey* crystallized Quartz, on Massive Quartz, intermixed with the same, white, and some Galena; from the same place.
- 322 *Dark smoke grey* common Quartz, with some delicate white streaks, and Iron ochry dots; from Schneeberg.
- 323 *Bluish grey* Quartz, strewed with Galena underneath; from the Isaac at Rothfurt near Freiberg.
- 324 *Pale pearl grey* crystallized Quartz, intermixed with cellular white ditto, and strewed over with Crystals of Sparry Iron Ore; from Hungary.
- 325 *Dark pearl grey* crystallized Quartz, spotted with red at the extremities, seated on white massive ditto; from Schneeberg.

c. c. Yellow and Grey.

- 326 *Pale honey yellow* crystallized Quartz, on massive white ditto, with adhering Argillite; from the same place.

K

327 Crystallized

- 327 Crystallized Quartz, passing from *yellow* into *dark brown*, on massive white ditto, in a Calcedony Spheroid; from Deux Ponts.
- 328 *Dark greenish grey* crystallized Quartz, strewed over with Crystals of Sparry Iron Ore, on massive white Quartz, intermixed with very much brown Blende, and some Iron Ochre; from Freiberg.
- 329 *Dark black* crystallized Quartz, on Amethyst, with adhering carnelian-like Calcedony; from the Palatinate.

Rem. Held towards the light it appears grey.

d. d. Red.

- 330 *Dark blood red*, inclining to *brownish red*, crystallized Quartz, on greyish white massive ditto, partially coated with Iron Ochre; from Schneeberg.
- 331 *Crimson red* Quartz, intermixed with white ditto, and a little Hornblende; from Saxony.

Rem. Common Quartz of this colour is extremely rare.

- 332 *Pale carnation red*, in some places more or less *darker*, Quartz; from Schneeberg.

e. e. With coloured Marks.

- 333 White Quartz, with *dark scarlet red dots*; from Geier in the Ertzgebirge.
- 334 White Quartz, with more delicate, *lighter dots*, on Calcedony; from Deux Ponts.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 335 *Massive* Quartz, with Mica adhering to both sides; from Geier.
- 336 *Disseminated* Quartz, in a mixture of yellowish Felspar, and black Mica (Granite); from Upper Lusatia.

337 Common

- 337 Common Quartz, in *blunt-cornered*, nearly *three-sided*, fragments; from the same place.
- 338 Common Quartz, forming an *oblate Spheroidal Pebble*; from the Leipzig sand-pits.
- 339 Common Quartz in *Amygdaloidal Pebbles*, in a ferruginous cement, with which it forms a Breccia; from Upper Lusatia.
- 340 Perfectly fine, white Quartz Sand; from Schneeberg.

b. b. Particular External Forms.

- 341 *Bulbous* yellowish white Quartz, in which a groupe of the same occurs; from the Leipzig sand-pits.
- 342 A small Quartz *Spheroid*; from Upper Lusatia.
- 343 *Very prominent reniform* Quartz, internally with impressions, and a little inhering granular Galena; from the Isaac near Freiberg.
- 344 *Minute Reniform* Quartz, which is circumstanced underneath as the foregoing; from the same place.
- 345 *Pectinated* Quartz, strewed over with Crystals of Martial Pyrites; from Freiberg.
- 346 *Very delicately pectinated* Quartz, passing into the cellular, and in the cavities of which an Amethyst groupe has formed; from Schneeberg.
- 347 *Very narrow Tetrahedral cellular* Quartz (with notches); from Hungary.
- 348 *Somewhat broader, similarly cellular* Quartz, crystallized on the under surface; from the same place.
- 349 Partly *tetrahedral*, partly imperfectly round *cellular* Quartz, on Massive ditto, with a little adhering Gneiss; from Freiberg.
- 350 *Fungiform round cellular* Ironshot Quartz, with impressions, and a little Galena underneath; from the Isaac near Freiberg,
- 351 Likewise *round cellular*, but the cells more *contiguous*, and on the whole reniformly curved, Quartz, with impressions underneath; from Hungary.
- 352 *Double cellular* Quartz, on which crystallized Quartz is formed, with adhering micaceous Argillite; from Schneeberg.

- 353 Quartz, with *small cubic impressions*, wherein in some places, the Fluor Spar which caused them is still to be found, with a very thin rind of Calcedony underneath.
- 354 Quartz, with *large cubic impressions* on the under side, with numerous small cubes of Fluor; from the Isaac near Freiberg.
- 355 Crystallized Ironshot Quartz, with *very deep impressions* from Fluor Cubes underneath; from the Pochertollen, at Schemnitz in Hungary.
- 356 White Quartz, partly with *impressions* and partly *perforated*, with some Galena strewed over; from Freiberg.
- 357 Greyish white Quartz, traversed by *wide cavities*, and with Galena strewed over; from ditto.
- 358 Ironshot *perforated* Quartz, and in some places *corroded*; from Schemnitz.
- 359 Quartz, traversed by very large *winding cavities*; from Saxony.
- 360 Pure white, *perfectly corroded*, Quartz; from the Hordriz.
- 361 The same, in some places *amorphous*; from ditto.
- 362 *Perfectly amorphous* Quartz, with *impressions* underneath; from Schneeberg.

s. c. Regular External Figures.

a. Prisms.

- 363 The upper part of a *very large* hexhædral Quartz Prism, terminated pretty regularly at one end by six planes; from Schneeberg.
- 364 A perfectly similar Prism, but large, of crystallized Quartz, which is coated with much Iron Ochre; from Geier.
- 365 Crystallized Quartz, of a similar variety, but smaller, with three acuminating planes curved outwards, penetrated by some black Schörl and a little Fluor, also with overlaying Mica; from Eibenstock.
- 366 A similar triple Crystal, the Crystals adhering to each other by their side planes, with a little overlaying Porcelain Clay; from Aue beside Schneeberg.
- 367 Crystallized Quartz, in similar Prisms of a middling size, with two notably larger acuminating planes, which

which terminate in an edge, on Topaz Rock; from Schneckenstein.

- 368 A groupe of similar, and somewhat smaller, Quartz Crystals, with a little Copper Pyrites both within the Crystals, and externally coating them.
- 369 Crystallized Quartz, of a similar kind, with drusy lateral, and smooth acuminating planes, with very small crystallized Copper Pyrites strewed over; from Freiberg.
- 370 Crystallized Quartz, in slender, long, similar Prisms, with from three to four very large acuminating planes, and smooth lateral planes, in a groupe, intermixed with a little Pyrites; from the Hartz.
- 371 Crystallized Quartz, in similar, short columns, with two very small acuminating planes, on Gneiss; from Freiberg.
- 372 Crystallized Quartz, of a similar sort, but with drusy lateral surfaces, on massive ditto, in which some Galena and Blende, and also Copper Pyrites is intermixed; from ditto.
- 373 Crystallized Quartz, in similar Prisms, but proportionally much slenderer, intermixed with Porcelain Clay, and strewed over with very small Crystals of martial Pyrites, on decayed Gneiss; from the same place.
- 374 Quartz, crystallized in similar hexhædral Prisms, with rather strong Apices, in which a great number of small ones encompass another of a middling size; from Schemnitz.
- 375 Similarly crystallized Quartz, in which the acuminating planes are as large as the lateral planes; from Freiberg.
- 376 Quartz, crystallized in the foregoing manner, but with still larger acuminations, and strewed over with calcareous Spar Crystals, in Massive Quartz, wherein a little Arsenical Pyrites is found; from Braunsdorf.
- 377 Similar small Crystals, with very large acuminations, and accumulated without order, with martial Pyrites strewed over; from Freiberg.
- 378 Quartz, crystallized in somewhat smaller, similar Crystals, which in some places pass into single hexhædral Pyramids, and upon which a considerable quantity of Baroselenite and Sparry Iron Ore Crystals is found, with

- with some Massive Baroselenite, adhering to the lateral Plane of an hexhædral Prism of a middling size; from Goslar in the Hartz.
- 379 Quartz, crystallized in minute, similar Prisms, aggregated columnarly, nearly in rows; from Gerisdorf.
- 380 Quartz, crystallized in similar, small, aggregated hexhædral Prisms, but in some places adhering singly upon one another, on Massive Ironshot Quartz; from Schemnitz.
- 381 A similarly shaped hexhædral Prism, from the apex of which a second Prism is crystallized, in another Quartz groupe, with adhering Porphyry, in which Blende and Martial Pyrites are disseminated; from the same place.
- 382 A Quartz groupe of similar Crystals, partly adhering to, and partly penetrating each other; at least so, that the bases of the very small are seated on the lateral planes of the small, and others of middling size, and the whole is on cellular Quartz here and there incrustured with particles of Martial Pyrites; from the same place.
- 383 In a similar manner crystallized Prismatic Quartz, where from two to four Prisms adhere together, sometimes in ranks, sometimes polygonally, with overstrewn Copper Pyrites, in Massive Quartz, which is intermixed with much black Blende, on Gneiss; from Freiberg.
- 384 Similarly crystallized Quartz, but so aggregated that several Prisms lean together by their summits, under an angle of from 20 to 25°, on Massive Quartz, with adhering Gneiss; from Freiberg.
- 385 A dilated hexhædral Quartz Prism of this kind, with numerous small Crystals of Martial Pyrites on three of its planes; from the same place.
- 386 A very much dilated, similar Quartz Prism of a middling size; from Schneeberg.
- 387 A groupe of numerous similar Quartz Crystals, which pass from the dilated form to an acute pyramid, and in one spot is incrustured with a large quantity of Iron Ochre; from Kremniz.
- 388 An hexhædral Quartz Prism, distinctly acuminated at both extremities, by six planes; from Freiberg.
- 389 Clove brown, similar Quartz Crystals, aggregated in
Maçlea,

- Macles, with a little Lithomarga; from Ehrenfriedersdorf.
- 390 Several Quartz Crystals, penetrating each other in a similar manner, and partly furnished with low lateral planes; from Compostella in Spain.
- 391 Quartz crystallized in similar, slender Prisms, in a groupe, with a considerable quantity of black Blende, on massive Quartz; from Freiberg.
- 392 A groupe of perfectly similar, small and slender Quartz Crystals, with Antimonial Ore, as it appears; from the Hartz.
- 393 Quartz just so crystallized, only with shorter Prisms, in a groupe, accompanied with Baroselenite, and Ironshot cellular Quartz; from Freiberg.
- 394 A groupe of still smaller ditto, very beautifully accumulated over each other, here and there intermixed with Iron Ochre, and underneath with mountain green Fluor Spar, and compact Baroselenite; from the same place.
- 395 Quartz crystallized in very small, similar Prisms, which in some places pass into the double Hexhædral pyramid, in a mixture of foliated Baroselenite and Quartz; from the same place.
- 396 Quartz crystallized in Hexhædral Prisms, terminated at one extremity by three planes, with an extraordinary quantity of Crystals of martial Pyrites overstrewn every where, on massive Quartz, wherein some crystallized Fluor Spar is found underneath; from Ehrenfriedersdorf.

β. Pyramids.

- 397 Crystallized Quartz, in single hexhædral Pyramids, invested with Calcedony, with some Calcareous Spar in one place, upon Amethyst, in a Calcedony spheroid, which as usual is enveloped by a rind of green Earth; from Deux Ponts.
- 398 Quartz, crystallized in similar Pyramids of a middling size, with sparry Iron Ore Crystals strewn over on one side, and Crystals of Martial Pyrites laying over all, but underneath with massive sparry Iron Ore, which is intermixed with Galena; from Freiberg.

399 Quartz

- 399 Quartz crystallized in similar pyramids, coarse granularly accumulated, on Calcareous Spar ; from Freiberg.
- 400 Similar Quartz Crystals, coarse granularly accumulated in a groupe, and here and there a little bud-like ; from Schneeberg.
- 401 Ditto, partly reniformly and partly coarse granularly accumulated, with adhering striated Limestone ; from Saxony.
- 402 A groupe of pyramidal Quartz Crystals, which are somewhat indistinctly accumulated in buds, interspersed with Iron Ochre, on siliciferous Argillite, intermixed with martial Pyrites ; from Schneeberg.
- 403 Crystallized Quartz in pyramids, aggregated in large buds, which are again accumulated into an entire groupe ; from the same place.
- 404 Pyramidal crystallized Quartz, accumulated in somewhat smaller buds, incruited on one side with Calcareous Spar Crystals ; from Schneeberg.
- 405 Pyramidal Quartz, similarly accumulated, but in still smaller buds, on massive Quartz, on one side with very small Crystals of Martial Pyrites, and underneath with adhering decomposed Argillite ; from the same place.
- 406 Pyramidal Quartz, accumulated in small buds, which almost seem only drusy, on a Kastendruse, so called ; from Schneeberg.
- 407 Crystallized Quartz, in single hexhædral Pyramids, on Rock Crystal and other common Quartz, with adhering Granite ; from the same place.
- 408 A groupe of small, similar pyramidal Crystals, here and there intermixed with Baroselenite, on massive Quartz, wherein also Baroselenite occurs from ; Freiberg.
- 409 Quartz crystallized in still smaller, similar Pyramids, with numerous Crystals of Copper Pyrites strewed over, on massive Quartz, which is partially intermixed with grey Wakke and sparry Iron Ore ; from the Hartz.
- 410 Quartz crystallized in small, double hexhædral Pyramids, on the same, with impressions ; from Schemnitz.
- 411 Quartz, crystallized in somewhat smaller, similar Pyramids,

mids, in Calcedony, with some Hornstone; from Verschweiler in Deux Ponts.

- 412 Crystallized Quartz of the same sort, but imperfectly reniformly accumulated, with Crystals of Martial Pyrites partially strewed over, on Gneiss; from Freiberg.
- 413 Quartz crystallized in similar, very small Pyramids, with the same, larger, in a groupe, with small Crystals of Martial Pyrites here and there strewed over; from the Hartz.
- 414 Quartz crystallized in minute, similar Pyramids, accumulated nearly as a Sand Stone; from Upper Lusatia.
- 415 Quartz crystallized in small, similar Pyramids, with the edges of their bases truncated; from Schneeberg.

γ. Other Rarer Crystals.

- 416 Quartz crystallized in rather thin, Rhomboidal Tetrahedral tables, which are partly accumulated upon one other, on the same, with impressions, in which some Galena occurs; from the Halsbrücke near Freiberg.
- 417 Quartz crystallized in Rhombs, with their angles truncated, in Massive Quartz; from the Valley Bijoux, six miles from Geneva.
- 418 Quartz crystallized in perfect cubes, in some places with Pyramidal Quartz Crystals, on Massive Quartz, with adhering Argillite; from the Fürstenvertrag at Schneeberg.

Rem. This last has been very often described as Hornstone.

c. Varieties of the Surface.

- 419 Pyramidal crystallized Quartz, with *smooth* surfaces, on Massive ditto; from the same place.
- 420 A fragment of a large Pyramid, with extremely *drusy* planes; from the same place.
- 421 Quartz likewise pyramidally crystallized, with an excavation of a line in depth, and in this hollow, the lateral planes are *drusy*; from the Kupferrose at Lauterberg, in the Hartz.

d. *Varieties of the Fracture.*

- 422 Massive yellowish grey Quartz, with a tolerably *flat Conchoidal* fracture, between Hornblende; from Siberia.

Rem. this much resembles Pitch Stone, on account of its colour and lustre.

- 423 Greyish white, *Minute Conchoidal* Quartz, (fat Quartz) with disseminated Galena, Arsenical and Martial Pyrites; from Freiberg.
- 424 Grey Quartz of an extremely *Minute Conchoidal*, in some places almost *splintery* fracture, with some Arsenical Pyrites, and adhering decomposed Gneiss; from the same place.
- 425 Pale smoke grey, very *flat Conchoidal*, in some places *splintery*, Quartz, which passes into Flint; from Dölau near Halle, in Magdeburg.
- 426 Greyish white, *fine splintery* Quartz; from Oberschöna near Freiberg.
- 427 A fragment of Quartz, with a *coarse splintery* fracture; from Upper Lusatia.

e. *Varieties of the Fragments,*

- 428 Greyish white Quartz, with *sharp edged* fragments; from Freiberg.
- 429 A *Rhomboidal* fragment of Quartz; from Upper Lusatia.

f. *Varieties of the Distinct Concretions.*

- 430 Quartz with very *thick Columnar* distinct concretions, with a very small quantity of Copper Pyrites; from Freiberg.
- 431 *Thin Columnar* Quartz, with some Galena, on Gneiss; from the same place.
- 432 Quartz, with *small Granular* distinct concretions; from Baretth.
- 433 Yellowish brown Quartz, with *fine Granular* distinct concretions (Avanturine); from Spain.
- 434 Greenish Quartz, with very *fine Granular* distinct concretions, which resembles a Sand Stone; from Saxony.

435 Variegated

- 435 Variegated Quartz, with *extremely fine Granular* distinct concretions, which are scarcely visible, but in the sun shine; from Kemniz.

g. Varieties of the Transparency.

- 436 Crystallized Quartz, in a high degree semitransparent, on Massive ditto, in a Calcedony Spheroid; from Oberstein.
- 437 Strongly translucent Quartz, with Calcedony, and externally, some superficial black Schörl; from Schneeberg.
- 438 Slightly translucent greyish white Quartz, with adhering micaceous Argillite; from the same place.

D. Prasium.

Kirwan, 5th Spec. Silic. Gen.

- 439 Massive dark olive green Prasium, with green Actynolite, on common Quartz, which is intermixed with Copper Pyrites, and adhering to Trap; from the Nediewikoi mine at Lake Onega in Siberia.
- 440 Leek green Prasium, with Columnar distinct concretions; from Breitenbrunn, near Schwarzenberg in the Erzgebirge.

16. HORNSTONE.

Kirwan, 32d Spec. Silic. Gen.

a. Varieties of the Colour.

- 441 Yellowish White, a little inclining to greyish, Hornstone; from Johann Georgenstadt.
- 442 Bluish, in some places yellowish grey, Hornstone, intermixed with a little Jasper; from Schneeberg.
- 443 Reddish grey Hornstone, with a green margin; from Orenburg.
- 444 Pearl green, strongly inclining to red, Hornstone, which is intermixed with Actynolite, and accompanied by Trap; from Saalberg in Sweden.

- 445 Hornstone passing from the *pearl grey*, into *red*, with some Quartz and Mica intermixed; from Rochlitz in Saxony.

Rem. the Hornstone forms in this variety, the basis of a Porphyry.

- 446 *Reddish brown* Hornstone, with an adhering Quartz Groupe; from Schneeberg.
- 447 *Very dark reddish brown* Hornstone, incrustated with a groupe of minute Quartz Crystals; from the same place.
- 448 A fragment of Hornstone, which is intermediate between the *Carnation* and *Rose red*, with superficial brown Ironstone; from Schneeberg.
- 449 *Dark blackish brown* Hornstone, with adhering *reddish brown* ditto, and intermixed with a little Quartz, as also some Cobaltic incrustation; from the same place.
- 450 *Greenish grey* Hornstone, very much resembling Flint, from Garlseback near Meissen.
- 451 *Dark mountain green* Hornstone, with Quartz, in a Calcedony Spheroid; from Schneeberg.
- 452 A fragment of Hornstone, of an intermediate colour between *mountain* and *grass green*; from Garpenberg in Sweden.

Rem. This is the rarest Variety of this Fossil.

b. Varieties of the Fracture.

- 453 *Very coarse splintery*, brownish red Hornstone, with adhering Quartz and Argillite; from Schneeberg.
- 454 Grey, somewhat greenish streaked, Hornstone, with a minute splintery Fracture, inlaying Felspar and Quartz; from Johann Georgenstadt.

c. Transitions.

- 455 Minute splintery Hornstone, which possesses some glimmering Lustre, and therefore passes into common Quartz; from Schneeberg.
- 456 *Extremely fine splintery* Hornstone, passing into the *even*, which therefore nearly approaches to Calcedony; from the same place,

17. FLINT.

*Kirwan, 31st Spec. Silic. Gen.**a. Varieties of the Colour.*

- 457 *Pale yellowish white* Flint, in dark smoke grey ditto; from Upper Lusatia.
- 458 *Full wine yellow* Flint; from Littau.
- 459 *Yellowish brown* Flint, with Quartz, and some Calcedony; from Schneeberg.
- 460 *Yellowish grey*, but at the edges *full yellow*, Flint; from Littau.
- 461 *Pale smoke grey* Flint; from the same place.
- 462 *Dark smoke grey* Flint; from the same place.
- 463 *Greyish black* Flint, in a pudding stone; from England.
- 464 *Dark black* Flint; from the English coast.
- 465 *Reddish grey* Flint, dotted with white, with adhering greenish Hornstone; from Johann Georgenstadt.
- 466 *Dark Ochre yellow* Flint, with black rings, in a white siliceous cement; from England.
- 467 *Yellow and greenish* Flint, spotted with grey; from the same place.
- 468 Partly *grey and brown*, partly *blueish grey*, and *black annulated* Flint, in the foregoing cement (466); from England.
- 469 *Yellowish brown* Flint spotted with smoke grey, in the same cement; from the same place.
- 470 *Smoke grey, red-annulated*, Flint, in a similar cement; from the same place.

*b. Varieties of the External Shape.**a. a. The Common External Shape.*

- 471 Flint in partly *amygdaloidal*, partly *elliptic*, blunt cornered pieces; from England.
- 472 A *oblate spheroidal*, blunt cornered piece of Flint; from Upper Lusatia.
- 473 *Nodular* Flint; from the Leipzig sand-pit.

- 474 An *oblong nodular* piece of flint, shaped like an horses foot.
 475 A similar piece of Flint, only rather flatter.

b. b. Particular External Shape.

- 476 An *excavated nodular* piece of Flint coated both externally and also within the cavity, by a calcareous rind; from Schonen in Sweden.
 477 *Perforated* Flint; from Braunschweig.
 478 *Amorphous* Flint.

c. c. Regular External Figure.

- 479 Flint, crystallized in obtuse Trihædral Pyramids, on the same, Massive, with some Martial Pyrites; from the Fürstenvertrag at Schneeberg.

d. d. Extraneous External Shape.

- 480 A fragment of a large Echinite of Flint, enveloped by a calcareous rind; from Mästricht.
 481 A smaller ditto, wherein neither mouth nor anus are any longer discernible; from Eulenburg in Saxony.
 482 A similar one, by one third larger, with the anus still distinct; from Poland.
 483 Yellowish grey Flint, with numerous slender petrified Echinite Spines; from the same place.
 484 Two pretty thick Echinite Spines connected together, which much resemble a crabs claw; from the same place.
 485 A smooth Terebratulite in Flint; from the same place.
 486 A polished piece of Flint with small, not very distinct, coralliform petrifications, which however seem to be Madreporites; from the same place.

c. Varieties of the Fracture.

- 487 A fragment of Flint, of a *perfectly conchoidal* fracture; from Poland,

- 488 Smoke grey Flint, with a rather *imperfect conchoidal Fracture*, overlaid with indurated Chalk; from Italy.
- 489 Smoke grey Flint of an *imperfectly conchoidal Fracture*, which in some parts passes into the *coarse splintery*; from Upper Lusatia.

a. *Varieties of the distinct Concretions.*

- 490 Flint of rather *thick and curved lamellar distinct concretions*; from Littau.
- 491 A fragment of yellowish Flint, with tolerably *thin lamellar distinct concretions*; from the same place.

d. *Transitions.*

- 492 Pale yellowish grey Flint, streaked with green, which passes into Quartz; from Upper Lusatia.
- 493 Pale smoke-grey Flint passing into Hornstone; from Littau.
- 494 Flint, inclining from the smoke grey, thro' yellowish grey and wine yellow, into hyacinth red, and therefore passing into Carnelian; from France.

18. CALCEDONY.

Kirwan, 291b *Spec. Silic. Gen.*

a. *Varieties of the Colour.*

- 495 *Perfectly milk-white* Calcedony; from the Palatinate.
- 496 *Bluish white* Calcedony; from Schonen.
- 497 *Pale smoke grey* Calcedony, with common Quartz; from Freiberg.
- 498 *Bluish grey* Calcedony; from the Palatinate.
- 499 *Pearl grey* Calcedony; from the same place.
- 500 Calcedony, which is intermediate between *Violet* and *Lavender blue*; from the same place.
- 501 *Wine yellow* Calcedony, with some darker spots; from Ceylon.
- 502 *Honey yellow* Calcedony, on Quartz, which is intermixed with Fluor Spar, wherein a little grey Copper Ore is disseminated; from Gerisdorf.

503 A piece

- 503 A piece of Calcedony of an *Honey yellow* colour; from Upper Lusatia.
- 504 *Dark Honey yellow* Calcedony; from the same place.
- 505 *Dark mountain green* Calcedony, here and there passing into *Honey yellow*; from the Island of Ferröe.
- 506 Partly *greenish grey*, partly *grass green*, partly *olive green*, Calcedony upon Opal; from the same place.
Rem. this is an evident transition from Calcedony into Opal.
- 507 Calcedony *brown* at the edges, then *reddish*, and in the middle *whitish*, and clouded; from the Palatinate.
- 508 *Pearl grey* Calcedony with milk white, annular veins, with a little inlaying Quartz; from the same place.
- 509 *Yellowish brown* Calcedony. annularly spotted with white; from the same place.
- 510 A *milk white* Calcedony Spheroid dotted with blood red, traversed by narrow pure white streaks, in fortificationlike curves, and bordered by a broad bluish grey streak; from Oberstein.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 511 *Massive* Calcedony, in Quartz, which is intermixed with granular limestone; from Oberstein.
- 512 Small *blunt cornered* pieces of Calcedony; from Ferröe.
- 513 A *spherically convex* Calcedony pebble; from Iceland.
- 514 An *almost triangular, prominent*, Calcedony Pebble, inclosing a small Quartz groupe; from the same place.

b. b. Particular External Shape.

- 515 *Globular* Calcedony, with crystalized Quartz and calcareous Spar; from Oberstein.
- 516 Calcedony forming a *thick overcast*, on a sort of Amygdaloid; from Iceland.
- 517 Calcedony,

- 517 Calcedony, forming a *thin overcast* on crystallized Quartz, which rests on Fluor Spar; from Gerisdorf.
- 518 Greyish Calcedony forming a *very thin overcast*, on a compound of partly massive, partly crystallized Quartz, with a little Copper Pyrites and Galena, and also adhering Gneiss; from Donat near Freiberg.
- 519 *Flatly reniform* brown Calcedony, on calcareous Spar; from Gerisdorf.
- 520 Rather more *globularly reniform* Calcedony, on massive ditto, with a little intermixed Mica, brown Ironstone, and a little adhering Granite; from Schneeberg.
- 521 *Spheroidically reniform* Calcedony, with a granular surface, between two walls of Fluor Spar; from Gerisdorf.
- 522 *Large Botryoidal*, approaching to *Stalactitic*, Calcedony; from Iceland.
- 523 *Botryoidal* Calcedony, on massive ditto; from Bareith.
- 524 *Minute Botryoidal* Calcedony; from the same place.
- 525 Calcedony which is intermediate between the *minute Botryoidal* and *Arbustiform*, on compact brown Ironstone; from Schneeberg.
- 526 Partly *minute*, and partly very *minute Botryoidal* and *cellular* Calcedony; from Bareith.
- 527 *Thick Stalactitic* Calcedony; from Saxony.
- 528 *Thinner Stalactitic* Calcedony, on compact brown Ironstone; from Hüttenberg in Carinthia.
- 529 *Very delicately Stalactitic* Calcedony, in an Amethyst Groupe, which is enclosed in a Calcedony Spheroid; from Oberstein.
- 530 *Minute coralliform* Calcedony, with adhering *cellular* ditto; from Bareith.
- 531 *Amorphous* Calcedony; from Iceland.

c. c. *The Regular External Shape.*

- 532 Tetrahedral pyramidal crystallized Calcedony, with convex Planes, on Galena, which is intermixed with Quartz, and adhering to Gneiss; from the Sonnenwirbel in the Brander District, near Freiberg.

Rem. It may be easily perceived in this variety, that it is not a true Crystallization, but that these Pyramids of Calcedony should be considered really as an overlayer of the ancient crystals of some other Fossil, now lost.

c. *Varieties of External Surface.*

- 533 A Fragment of a Calcedony Pebble, with partly rough, partly almost perfectly smooth surfaces, on one corner coated with Flint; from Upper Lusatia.
- 534 A Calcedony Pebble, with a rather uneven surface; from the same place.
- 535 Another, with a smooth surface; from Grumbach.
- 536 Reniform Calcedony, with a drusy surface, on decayed Sienite, which is traversed by several small veins of Calcedony; from Garfebach, near Meissen?

d. *Varieties of the Fracture.*

- 537 A Fragment of white Calcedony, with an almost perfectly even fracture; from Iceland.
- 538 Greyish white Calcedony intermixed with green Earth, of an imperfectly conchoidal Fracture; from the same place.
- 539 Yellowish grey Calcedony, with a compact Fracture, which is intermediate between the even, splintery, and uneven; from Saxony.

e. *Varieties of the Distinct Concretions.*

- 540 Greenish grey Calcedony, with perfectly plain, thick lamellar distinct Concretions, with a little adhering Quartz; from Ferröe.
- 541 Variegated Calcedony, with perfectly plain, but thin lamellar distinct Concretions.
- 542 A polished piece of Calcedony, with fortificationwise curved, thick lamellar distinct Concretions; from Iceland.
- 543 Milk white Calcedony, with thin lamellar distinct Concretions, similarly curved; from Ceylon.
- 544 Partly thick, but chiefly thin and curved lamellar Calcedony, the lamellæ curved reniformly, according to the external shape of the Specimen, upon and in compact brown Ironstone which is intermixed with some sparry Iron Ore; from Hüttenberg in Carinthia.

f. *Varieties*

f. Varieties of Transparency.

- 545a *Perfectly transparent milk white Calcedony, spotted with black; from Iceland.*
- 545b *A piece of Calcedony, semitransparent in an high degree; from Frankfort on the Main.*
- Rem. This generally bears the name of Lava Glass, and Mullers Glass. Vide Kirwan 28th Species, Silic. Genus.*
- 546 *Milk white Calcedony spotted with red, semitransparent in an inferior degree; from Deux Ponts.*
- 547 *Pearl grey, strongly translucid Calcedony; from Iceland.*

*B. Carnelian.**Kirwan 2d Family, 29th Spec. Silic. Gen.**a. Varieties of the Colour.*

- 548 *Dark yellowish brown Carnelian; from the Tomstrom in Siberia.*
- 549 *Dark reddish brown Carnelian, mixed with lighter; from the same place.*
- 550 *Dark blood red Carnelian, intermixed with brown.*
- 551 *Lighter blood red Carnelian, intermixed with Calcedony.*
- 552 *Full blood red Carnelian, intermixed with the last named Fossil.*
- 553 *Carnelian, which is intermediate between blood, and Hyacinth red.*
- 554 *Hyacinth red Carnelian, traversed by streaks of Calcedony.*
- 555 *Dark honey yellow Carnelian, in Calcedony.*
- 556 *Carnelian, of a colour compounded of honey yellow and Hyacinth red.*
- 557 *A piece of Carnelian of a similar yet somewhat lighter colour.*
- 558 *Reddish white Carnelian, with a nucleus of Calcedony.*
- 559 *Dark honey yellow Carnelian.*
- 560 *Light honey yellow Carnelian, mixed with Calcedony.*
- 561 *Wax yellow Carnelian, passing into Calcedony.*

- 562 *Carnation red* Carnelian, mixed with much Calcedony, and a small Quartz groupe.
- 563 *Dark Carnation red* Carnelian, with inlaying Calcedony; from Bareüth.
- 564 *Carnation and Hyacinth red* streaked Carnelian.
- 565 *Light blood red* Carnelian, with dark brown separate stripes.
- 566 *Clouded* Carnelian, mixed with Calcedony.
- 567 *Fortificationwise veined* Carnelian, with Calcedony.
- 568 Similarly, but far more delicately *veined* Carnelian, in Calcedony, which is likewise mixed with Amethyst.
- 569 *Brownish red* Carnelian with *dendritic figures*, in Calcedony.

b. Varieties of the External Shape.

- 570 Rather dark Carnelian *diffeminated* in a mixture of Calcedony and lighter Carnelian.
- 571 *Exceeding finely diffeminated*, scarcely more than dots of Carnelian, in a Calcedony Spheroid, which is also mixed with Amethyst; from Oberstein.
- 572 A Carnelian *Pebble*.
- 573 *Stalactitic*, somewhat decayed Carnelian, enveloped by a rind of Calcedony, on a Quartz Rockstone; from Bareüth.

c. Varieties of Transparency.

- 574 A piece of *semitransparent* Carnelian.
- 575 *Strongly translucent* Carnelian, which is mixed with Calcedony.
- 576 Carnelian *translucid* in a somewhat inferior degree.
- 577 Carnelian *translucid at the edges*, also mixed with some Calcedony.

Rem. From No. 549 to 558, and from 560 to 562, also from 565 to 570, and from 574 to 576, with the exception of No. 568, which is from the Palatinate, are all from Ceylon, and No. 559, 562, 564, 567, 570, 572, from Siberia.

19. *HELIOTROPIUM.**Kirwan, 35th Spec. Silic. Gen.*a. *Varieties of the Colour.*

- 578 *Dark blackish green*, inclining to *leek green*, *Heliotropium*, with a little inlaying *Calcareous Spar*; from *Siberia*.
- 579 *Very dark mountain green* ditto, passing into the foregoing colour; from *Bohemia*.
- 580 *Heliotropium*, of an intermediate colour, between *mountain* and *olive green*; from the same place.
- 581 A somewhat *lighter* similar ditto; from the same place.
- 582 *Heliotropium*, passing from the *mountain*, into *Verdigris green*; from *Iceland*.
- 583 Partly *dark*, partly *pale green* ditto, dotted with *blood red*; from *Siberia*.

b. *Varieties of the Fracture.*

- 584 A fragment of *Heliotropium*, of a very *flat Conchoidal*, passing into the *even* fracture, with adhering *green Earth*, into which it appears to graduate; from *Siberia*.
- 585 A fragment of *Heliotropium*, of a rather *flat* and imperfect *Conchoidal*, here and there a little coarse *splintery* fracture; from *Iceland*.

Rem. This is also very strongly translucent at the edges.

- 586 A fragment of *Heliotropium*, the fracture of which is exactly intermediate between *Conchoidal* and *Splintery*, and which is likewise only slightly translucent at the edges; from *Siberia*.

20. *CHRYSTOPRASIMUM.**Kirwan, 23d Spec. Silic. Gen.*a. *Varieties of the Colour.*

- 587 *Dark grass green*, slightly inclining to *grey*, *Chrysoprasium*.

588 A piece

- 588 A piece of Chrysoprasium, of an intermediate colour between *Apple* and *Verdigris green*, with adhering Iron shot indurated Clay.
- 589 A piece of Chrysoprasium, of an intermediate colour between *apple* and *grass green*, with adhering Asbestos.
- 590 A somewhat *lighter* simular ditto, with adhering Argillaceous Iron Ochre.
- 591 *Full apple green* ditto, mixed with Ironshot talc.
- 592 *Pale apple green* ditto, with the same.
- 593 *Greenish grey* ditto.
- 594 *Greenish grey*, inclining more into *grey*, Chrysoprasium, in Hornstone, with adhering Opal.
- 595 *Greenish white* ditto.

b. Varieties of the External Form.

- 596 *Massive* Chrysoprasium, with adhering Steatites on both sides.

c. Varieties of the Fracture.

- 597 A fragment of ditto, with an *even* but very slightly approaching to the *splintery*, fracture, in Hornstone.
- 598 A ditto, the fracture of which is intermediate between *even*, *imperfectly conchoidal* and *splintery*, with Opal and adhering Talc.

d. Transitions.

- 599 A perfect transition from the dark apple green Chrysoprasium, through greenish grey and yellowish grey, into *Hornstone*.
- 600 A completely intermediate Fossil, between greenish white Chrysoprasium, and paleish grey white *Opal*.

Rem. All these specimens are from Kosmütz in Lower Silesia.

21. SCHISTOSE HORNSTONE.

Kirwan, 2d Family 32d Spec. Silic. Gen.

A. *Siliceous Schistus.*

- 601 Blackish grey siliceous Schistus, with an imperfect conchoidal

conchoidal fracture, and coated in the rifts with Iron Ochre; from Upper Lusatia.

Rem. This passes into the following variety.

- 602 Smoke grey ditto, with a thick and plain slaty fracture, from whence almost lamellar distinct concretions may be separated, with adhering reddish Argillite; from the same place.

B. *Basanite.*

- 603 Perfectly dark black Basanite, cut for a Touchstone; from Leipzig.
- 604 Greyish black ditto, forming a Pebble, traversed by much Quartz; from the Leipzig Sandpit.

Rem. This approaches to the former Variety.

- 605 Minute but tolerably perfect conchoidal Basanite, which on the whole appears somewhat thick slaty, coated in the rifts by a thin Quartz rind; from Upper Lusatia.
- 606 A Basanite Pebble, with a somewhat flat conchoidal fracture; from the same place.

22. *OBSIDIAN.*

Kirwan 14th Spec. Silic. Gen.

- 607 Perfectly dark black, completely conchoidal Obsidian; from Iceland.
- 608 A dark black, very slightly inclining to greyish, Obsidian, reflecting Iridescent colours here and there in the fracture; from the same place.
- 609 A blackish grey, flat conchoidal Obsidian Pebble, with an argillaceous coating; from Telköbania in Hungary.

Rem. This is very strongly translucent at the edges, indeed almost perfectly translucent.

- 610 A fragment of greyish black Obsidian, with obscurely columnar distinct Concretions; from the same place.

Rem. This is also as translucent as the foregoing Specimen, the two first are perfectly opaque.

23. CAT'S EYE.

Kirwan, 30th Spec. Silic. Gen.

a. Varieties of the Colour.

- 611 A milk white Cat's Eye, reflecting a little yellow.
- 612 A pale greenish grey Cat's Eye, reflecting silvery white.
- 613 A pale wine yellow Cat's Eye, reflecting whitish.
- 614 Dark olive green Cat's Eye, reflecting silvery white.
- 615 Cat's Eye, reflecting from greenish into brown and silvery white.
- 616 Cat's Eye, reflecting yellowish brown and silvery white.
- 617 An honey yellow Cat's Eye.
- 618 A beautiful (half an inch large) yellowish white and reddish brown streaked Cat's Eye, with a slight milk white moveable effulgence.
- 619 A variegated Cat's Eye, reflecting copper red and white.
- 620 Cat's Eyes, mutably reflecting, from honey yellow to brownish, abounding with red dots, and longitudinally streaked with silvery white.

b. Varieties of the External Shape.

- 621 Three small oblong Cat's Eye Pebbles.

c. Varieties of the Fracture.

- 622 A greyish white Cat's Eye, with an imperfectly conchoidal slightly approaching to the splintery, fracture.

Rem. These are all from Ceylon.

24. ZEOLITE.

Kirwan, 20th Spec. Silic. Gen.

a. Varieties of the Colour.

- 623 Pure white Zeolite, with a little adhering Clay; from Iceland.

624 Partly

- 624 Partly pure, partly in some places reddish, partly yellowish white Zeolite; from the same place.
 625 Light honey yellow Zeolite; from the same place.
 626 Pale greenish grey Zeolite, mixed with white; from Ferröe.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 627 Massive Zeolite, with Amygdaloid still adhering; from Ferröe.

b. b. The Regular External Shape.

- 628 Zeolite, crystallized, in small, perfect, very distinct Cubes, with Crystals of Hornblende, in Basalt; from the Lauscha in Upper Lusatia.
 629 Zeolite crystallized, in small rectangular, tetrahedral Prisms, acuminated by four Planes which are set on the lateral edges, on calcareous Spar, on which underneath, a groupe of calcareous Spar occurs; from the Hartz.
 630 Zeolite, crystallized in the same manner, but the Prisms much compressed; from Iceland.
 631 Zeolite crystallized in similar, Rectangular Tetrahedral Prisms, intersecting each other at right angles with their lateral planes, therefore representing the figure of a cross, in a groupe, on Quartz, which is intermixed with Siderocalcite and Galena; from Andreasberg in the Hartz.
 632 A Groupe of rather smaller, similar, cruciformly aggregated Zeolite Crystals, in a mixture of Quartz, a large quantity of Galena, some Siderocalcite and a little grey Copper Ore; from the same place.
 633 Zeolite crystallized in very small, similar Prisms, but without this aggregation, on Quartz, with Calcareous Spar Crystals on ditto; from the Abendroth at Andreasberg.
 634 Crystallized Zeolite, in very thin, similar Prisms, appearing perfectly tabular, upon and in Amygdaloid, in which also some Calcedony occurs; from Ferröe.

- 635 Zeolite crystallized in similar, but smaller, and not quite so thin, Prisms, on Calcareous Spar, with adhering Martial Pyrites; from the same place.
- 636 Crystallized Zeolite, of a perfectly similar kind, but in some places scopiformly aggregated, with Calcareous Spar Crystals, upon and in Siderocalcite, which appears also to contain grey Copper Ore and a little Blende intermixed; from the same place,
- 637 Zeolite crystallized, in extremely beautiful Capillary, (probably) Pyramids, upon Amygdaloid; from Ferröe.

c. Varieties of the Fracture.

- 638 Zeolite with a *foliated* fracture, between Cacholong; from Iceland.
- 639 *Broad and divergingly striated* Zeolite, on Amygdaloid; from Ferröe.
- 640 *Narrow striated* Zeolite scopiformly aggregated, and passing into the *fibrous*; from the same place.
- 641 A Zeolite Pebble, with a *delicate diverging fibrous* fracture; from Iceland.
- 642 A fragment of Zeolite, with a *very delicate fibrous* fracture, but in some places decayed; from the same place.
- 643 *Extremely delicate Fibrous*, brownish Zeolite; from the same place.

d. Varieties of the Distinct Concretions.

- 644 Zeolite, of *coarse Granular* distinct concretions; from Iceland.
- 645 *Massive white* Zeolite, of partly *coarse*, partly *fine Granular* distinct Concretions, in Amygdaloid; from Ferröe,

e. Varieties of the Transparency.

- 646 A Zeolite Groupe, wherein the Crystals are for the most part *perfectly transparent*, on Siderocalcite; from the Hartz.
- 647 Crystallized Zeolite, in *an high degree semitransparent*, with Siderocalcite, and intersected by a Quartz Groupe; from the same place.

- 648 A Zeolite Groupe, the Crystals of which are only *slightly translucent*, with crystallized Siderocalcite and Quartz; from the same place.

25. LAPIS LAZULI.

Kirwan, 22d Spec. Silic. Gen.

a. Varieties of the Colour.

- 649 Dark Azure blue Lapis Lazuli, with disseminated Martial Pyrites; from Persia.
 650 Full Azure blue Lapis Lazuli. mixed with yellowish white Quartz; from Atakama in Chili.
 651 Rather lighter azure blue ditto, with a little Iron Ochre; from Persia.
 652 A piece of Lapis Lazuli of an *azure blue* colour, very much inclining to *Prussian blue*, from England.

b. Varieties of the External Shape.

- 653 Massive Lapis Lazuli, mixed with much Quartz, some Calcareous Spar, a little Mica and very little Martial Pyrites; from Siberia.
 654 A Lapis Lazuli Pebble with Quartz, of an almost heart-shaped elliptical figure; from the same place.
 655 A fragment of a flat Lapis Lazuli Pebble, with some Quartz and a little Mica; from the same place.

26. WOODSTONE.

Kirwan, 36th Spec. Silic. Gen.

a. Varieties of the Colour.

- 656 Dark blackish grey Woodstone resembling Siliceous Schistus, but with some remains of its former texture externally.
 657 Dark blackish grey, yellowish grey, and red, broad striped Woodstone, with adhering Jasper, which appears as if artificially set in it.

- 958 *Dark yellowish brown, white and light brown, striped Woodstone, inlaid with small Quartz groupings, which gives the whole an handsome appearance.*
- 659 *Reddish brown, carnation red, and reddish white striped ditto, of which the first colour predominates.*
- 660 *Pearl grey ditto, traversed by delicate, nearly parallel streaks, and here and there spotted with yellowish brown.*
- 661 *Blackish grey ditto, of a very beautiful appearance, traversed in rows by pure white oblong dots, (Star-stone.)*
- 662 *Greyish white, yellowish grey, and brown, here and there shaded ditto, traversed the whole length by numerous tubes, in which, in some places, small entire Quartz groupings occur.*
- 663 *Yellowish, and somewhat dark brown, Woodstone, spotted and veined with white; from Kolywan in Siberia.*
1. *Rem.* This has been most unquestionably a branch of a tree.
 2. All these specimens, except the last, are from Kemnitz in Saxony.

b. Varieties of the Fracture.

- 664 *Woodstone with an imperfect conchoidal fracture; from Tokai in Hungary.*
- Rem.* This specimen passes into the ligniform Opal, and shows in some places much resemblance to the so named Mullers Glass, from Frankfort on the Maine; that is, to such varieties as seem intermediate between Calcedony and Opal.
- 665 *Reddish brown Woodstone, of a thin slaty fracture, resembling the texture of Wood; from Kemnitz.*
- 666 *A fragment of ditto, internally with a minute splintery fracture, therefore nearly approaching to Hornstone, but externally with a ligneous texture; from Osmanstadt near Jena.*
- 667 *Yellowish grey Woodstone, which constitutes the complete transition into common Quartz; from Siberia.*

27. AGATE. (*As an Appendix.*)

A. Zoned Agate.

- 668 Brown red Zoned Agate, of a very beautiful appearance, traversed by narrow, partly white, partly greenish grey streaks; from Gnaundstein in Saxony.

Rem. This is in reality a striped Jasper.

- 669 Reddish brown ditto, with numerous parallel white stripes, which in some places are curved, somewhat fortificationlike, and are here and there separated from each other by small veins of Amethyst; from Schlottwiz in Saxony.
- 670 Bluish grey ditto, traversed by delicate narrow stripes; from the same place.
- 671 Honey yellow ditto, spotted with Hyacinth red, variously figured by some delicate dark brown, but on the other side, milk white stripes; from Kummerdorf.
- 672 Honey yellow, and red spotted, brown margined, zoned Agate, with adhering Porphyry; from Zwickau in Saxony.
- 673 Brown, pearl grey, and white striped, in some places also spotted ditto, traversed in the middle by a piece of true fortification Agate, which contains pearl grey and greyish white streaks; from Schlottwiz.

B. Fortification Agate.

- 674 Milk white Calcedony, reflecting Iridescent colours, with thin lamellar distinct Concretions, curved fortificationwise, in the middle; from Ceylon.
- 675 Similar Calcedony with brown streaks, which environ white Amethyst; from the Palatinate.
- 676 An Agate Spheroid, of which the marginal borders consist of greenish, bluish grey, and milk white Calcedony, the succeeding ones of nearly alternate yellowish, and milk white ditto, with disseminated dots of Jasper; from the same place.
- 677 A similar Agate, but the fortificationwise curved layers are thinner, and with a nucleus of Amethyst; from the same place.

678 Fortification

- 678 Fortification Agate, brown at the margin, but afterwards milk white, and greyish white in alternate layers, the middle one sprinkled throughout with dots of red Jasper; from the same place.
- 679 Fortification Agate, which consists, throughout of very thin milk white, and greyish white alternating layers of Calcedony, which exhibit breaks here and there, and envelope Amethyst in the centre; from the same place.
- 680 Fortification Agate, with partly milk white, partly bluish grey, and brown layers, with Amethyst in the middle as before, encompassed externally with some decayed Porphyry; from Kemniz.
- 681 Fortification Agate, with dark brown, red, bluish grey, and greyish white, and a very few milk white layers, not altogether so regular, with an inlaying Quartz groupe, and a similar overlaying Porphyry; from the same place.
- 682 Honey yellow, and bluish grey Agate, with fortificationlike layers, and a nucleus of Amethyst; from Deux Ponts.
- 683 Smoke and bluish grey, only slightly white veined ditto, with a cavity in the centre, wherein a small Quartz groupe has formed; from the same place.
- 684 Fortification Agate, which exteriorly is dark milk white, but interiorly yellowish nearly pure white, in rather thick layers, traversed in the middle by two stripes of Amethyst.
- 685 Fortification Agate, which consists of numerous, in some places angularly curved, partly milk white, partly pure white layers of Calcedony, here and there sprinkled with dots of Jasper; from Wiederau near Rochlitz.
- 686 Fortification Agate, exteriorly with a milk white margin, internally with yellowish white, and here and there straw yellow layers, and in the centre diversified by brown, white and reddish delineations, like a Landscape Agate; from Deux Ponts.
- 687 Fortification Agate, consisting of thick layers of a bluish grey, but internally of a smoke grey colour, traversed by a thin brownish stripe, appearing in the centre yellowish brown from an intermixture of Jasper

per dots, and externally encompassed by green earth from Oberstein.

- 688 Fortification Agate, with pale milk white and blood red, thin and double bastionlike layers; from the same place.
- 689 Fortification Agate, with similar layers, but single and exteriorly encompassed by a bluish grey stripe; from the same place.
- 690 Fortification Agate, with thin greenish grey fortificationlike layers, here and there interrupted by brown, which on one side passes into landscape Agate; from Kirchenbollenbach.
- 691 Fortification Agate, with brown, and milk white curved layers, and in the middle pearl grey and reddish delineations, with a small Amethyst groupe enclosed; from Deux Ponts.
- 692 Agate, exteriorly honey yellow, then brick red, and afterwards bluish grey, milk white, and greyish white, in layers; from the same place.
- 693 Agate, in dark smoke grey, and milk white layers, here and there traversed by brighter, and also red stripes; from the same place.
- 694 Agate, with blackish grey, and milkwhite delineations, and in several places veined; from the same place.
- 695 Agate, greenish grey at the margin, then with very broad pure and yellowish white stripes, afterwards Isabella yellow, and yellowish grey, in acute-angled, alternately bright and dark layers, each of which is spotted with reddish brown at the corresponding angles; from Kirchenbollenbach.
- 696 Asparagus green, Agate, with honey yellow, reddish brown, and rose-red delineations; from Deux Ponts.
- 697 Agate, with reddish brown, blood red, yellowish white, rose red, and a few greenish grey delineations.
- 698 Agate, with bright yellowish brown, passing through different shades into honey yellow delineations, with adhering smoke grey Quartz; from the same place.
- 699 Agate, with brownish and white alternate stripes, the former of which is the colour of the ground, which is owing to the admixture of Jasper.

700 Blood red

- 700 Blood red ditto, in several parts striped with milk white, in an Amethyst groupe; from Uzenbach in Deux Ponts.
- 701 A perfectly similar marked ditto, but with martial Pyrites in the centre, in an Amethyst Groupe; from the same place.
- 702 Agate marked in a similar manner, but the white stripes are unequally broader, also on Amethyst; from the same place.
- 703 Reddish brown ditto, traversed by a few very narrow white stripes, and enclosing Amethyst in the centre; from the same place.
- 704 Reddish brown ditto, with pretty broad greyish white stripes on both margins, which in the middle inclines considerably to the landscape variety; from the Halfbach near Freiberg.
- 705 Agate, with reddish brown at the margin, then greyish white, and here and there, full violet blue delineations; from the same place.
- 706 Partly Isabella, partly straw yellow, then brown, pale smoke grey, pearl grey, greyish white, and blood red fortification Agate, with a large nucleus of light violet blue Amethyst; from Deux Ponts.
- 707 Reddish brown, milk white and greenish grey ditto, striped in such a manner, that the greenish grey Amethyst, nearly half an inch broad, separates each, and a nucleus of it is enclosed; from Oberkirchen in Lorraine.

C. *Ring Agate.*

- 708 Isabella yellow Ring Agate, in some places with a brown margin, with much inlaying greyish white Amethyst: from the same place.
- 709 A somewhat angular variety of the Ring Agate, exteriorly pearl grey, then minute reniform greyish white Calcedony, afterwards the same of an Ochre yellow colour, wherein numerous small rings are represented; from the same place.
- 710 Yellowish brown Ring Agate, found in rows in an Amethyst ground, encompassed by blood red, grey, and brown fortification Agate; from the same place.

711 Bluish

- 711 Bluish grey, cochineal red, and reddish white, figured Ring Agate, in a greyish white Amethyst ground; from the same place.
- 712 Brownish red, smoke and yellowish grey, alternately figured Ring Agate, with adhering white Quartz; from Halsbach near Freiberg.
- 713 A similar Agate, but instead of the foregoing elevations, furnished only with depressions, and passing into the fortification Agate.
- 714 Another Agate, traversed moreover by violet blue Amethyst, holding a perfect medium between fortification and Ring Agate, but approaching nearer to the former.
- 715 Yellowish white, in some places inclining a little to to grey, Agate, encompassed by dark and pure white rings, in pale violet blue Amethyst, mixed with a little Carnelian; from Deux Ponts.
- 716 Reddish brown Ring Agate, with milk white veins, and a little Amethyst; from the same place.
- 717 Blood red, milk white, and pure white, with intermingled light violet blue, and greenish grey, figured Ring Agate; from the same place.
- 718 Figured Ring Agate, in small reddish brown, partly rose red, partly yellowish white, inclosed particles; from the same place.
- 719 Dark brown figured Ring Agate, with some brighter spots, and small white veins; from the same place.
- 720 Honey yellow, inclining to greenish, Ring Agate, of a similar kind, but more thickly veined with milk white; from Alchenroth.
- 721 Olive green, inclining to honey yellow, veined with milk white, Ring Agate, in small separate particles in greyish white Quartz; from the same place.
- 722 Milk and yellowish white annular Agate, in a pearl grey ground; from Deux Ponts.
- 723 Agate, figured in a similar manner, but more delicately, and with bluish grey shades; from the same place.

D. Landscape Agate.

- 724 Reddish brown landscape Agate, which appears to
O consist

- consist of well defined small arborizations, in a milk white ground; from the Palatinate.
- 725 Grey, red, greenish, and white, rather irregularly spotted ditto, with fortification and ring Agate in the same specimen; from the same place.
- 726 Milk white, leek green, and some brown, very beautiful figured ditto, with adhering fortification Agate, from the same place.
- 727 Agate, very dark, in a milk white ground, mixed with reddish; from the same place.
- 728 Greyish white, honey yellow, and red figured ditto, wherein one fancies he perceives an entire shrubbery; from the same place.
- 729 Ochre yellow ditto, in a brownish ground; from Alchenroth.

E. Moss Agate.

- 730 Milk white Moss Agate, traversed by brownish particles; from Ceylon.
- 731 Bluish grey ditto, traversed by dark brown Arborizations; from the Palatinate.
- 732 Milk white, Ochre yellow, blood red, and brown spotted Moss Agate, approaching to ring Agate; from the same place.
- 733 Greyish white ditto, traversed by yellowish grey; from the same place.
- Rem.* This is nothing but Amethyst, with some very fine Martial Pyrites, mixed through it.
- 734 Greyish white ditto, traversed by partly yellowish, partly dark brown; from Ceylon.
- 735 Milk white ditto, figured with blood red, passing into cochineal red; from Grumbach.
- 736 Greenish, and blood red, spotted, and striped, Moss Agate, from the same place.
- 737 Partly leek, partly mountain green ditto, traversed by honey yellow, and red spots; from the Palatinate.
- 738 Milk white Agate, very thickly traversed by greenish, nearly olive green, moss like particles, from Iceland.
- 739 Similar Agate, penetrated by very numerous reddish brown moss like particles; from Ceylon.

F. Dotted

F. *Dotted Agate.*

- 740 Milk white dotted Agate, penetrated by delicate red dots, enclosed in fortification Agate; from the Palatinate.
- 741 Agate penetrated by an extraordinary abundance of similar dots, which is intermediate between fortification and dotted Agate; from the same place.
- 742 Milk white Agate penetrated by more distinct and very small dots; which partly envelops a kernel of Amethyst; from the same place.
- 743 Leek green Agate with extremely delicate red dots; from Siberia.

Rem. This is a true Heliotropium.

- 744 Milk white Agate penetrated in some places by still more delicate red dots; from the Palatinate.
- 745 Brown Agate penetrated by partly Jaspidean, partly roundish, but also Massive Martial Pyritical, Particles; from Durlach.
- 746 White Agate figured with numerous red dots, accumulated in oblong stripes; from the Palatinate.
- 747 Pale pearl grey Agate penetrated with small blood red particles, the size of Hempseed; from the same place.

G. *Stellated Agate.*

- 748 Milk white Agate penetrated with dark grass green Stellular Particles; from Oberstein.
- 749 Partly pearl grey, partly blood red Agate, penetrated by numerous white Stellular Particles; from the same place.
- 750 Pearl grey Agate penetrated by milk white Scopiform Particles larger than peas; from the same place.

H. *Brecciated Agate.*

- 751 Very beautiful brecciated Agate, with large inlaying stripes of zoned Agate; from Schottwiz.

- 752 Blood red, light violet blue and white brecciated Agate, with large fragments of fortification Agate; from the Palatinate.
- 753 Red, white, and smoke grey brecciated Agate, which is composed of fragments of partly fortification, and partly ring Agate; from the same place.

I. *Jasp'agate.*a. *Varieties of the Colour.*

- 754 Dark reddish brown Jasp'agate in Amethyst, with adhering brecciated Agate; from Schlottwiz.
- 755 A beautiful Jasp'agate the principal colour of which is intermediate between blood and brick red, which is moreover mixed with some green ditto, and also Calcedony; from Iceland.
- 756 Full blood red Jasp'agate, with true Woodstone, in a piece of petrified wood; from Bohemia.

b. *Varieties of the Fracture.*

- 757 Jasp'agate with an *imperfectly conchoidal* fracture; from Bohemia.
- 758 Minute Conchoidal Jasp'agate together with somewhat obscurely *coarse granular* distinct concretions; from the same place.

2nd ARGILLACEOUS GENUS.1. *NATIVE ARGILL.*

Kirwan. 1st Tribe, 1st Class, Arg. Gen.

- 759 Perfectly pure white native Argill, with a little inlaying Vegetable Earth.
- 760 A large reniform piece of native Argill, an inch and half long, and almost as broad.
- 761 A small, broken, similar piece, remarkable for its fine earthy fracture.

Rem. These three specimens are all from Halle in Magdeburg.

2. *PROCELAIN*

1. PORCELAIN CLAY.

Kirwan, 2d Tribe.

- 762 Perfectly fine, yellowish white Porcelain Clay; from Aue near Schneeberg.
- 763 Perfectly fine, reddish white ditto; from the same place.
- 764 Greyish white somewhat coarser ditto, with small Quartz grains here and there; from the same place.
- 765 Yellowish white perfectly fine ditto, traversed by grey; from Gimriz near Halle.
- 766 Rather indurated, coarse earthy, nearly uneven, Porcelain Clay; from Sedlitz near Schiriz beside Meissen.
- 767 Yellowish grey, perfectly friable ditto; from Denmark.

3. COMMON CLAY.

A. Potters Clay.

Kirwan, 1st Family, 3d Tribe, 1st Class, Arg. Gen.

a. Varieties of the Colour.

- 768 Pale greenish white potters Clay very fine and nearly resembling the foregoing fossil; from Waldenburg in Saxony.
Rem. This variety commonly bears the name of Pipe Clay.
- 769 Pale greyish white Potters Clay; from Wehrau in Upper Lusatia.
- 770 Rather darker greyish white, very sandy, Potters Clay; from Leipzig.
- 771 Light yellowish grey ditto; from Gorliz in Upper Lusatia.
- 772 Brownish black ditto; from Derbyshire in England.
- 773 White ditto, sprinkled with yellow and red, which passes into the following sort; from Grossalmerode in Hesse.

b. Varieties

b. Varieties of the Fracture.

- 774 Pottery Clay with a distinct *fine earthy* fracture; from Wehrau.
 775 Reddish grey ditto, with a slightly *coarse* earthy fracture; from Gorliz.
 776 A piece of white ditto, so traversed by rifts, that the *earthy* fracture assumes a slight *conchoidal* appearance; from Tiefenfurth near Wehrau.

*B. Indurated Clay.**Kirwan, 2nd Family.*

- 777 Greenish grey, somewhat sandy, Indurated Clay; from Lauwald.
 778 Mountain green Indurated Clay, with adhering brownish red Indurated Clay, and mixed with a little Mica; from Gerisdorf.
 779 Indurated Clay, of a soiled Rose red Colour; from Upper Lusatia.
 780 Reddish brown Indurated Clay, which passes into the foregoing variety; from the same place.

*C. Slate Clay.**Kirwan, 1st Var. 3rd Fam.**a. Varieties of the Colour.*

- 781 *Light Smoke* grey Slate Clay; from Planitz near Zwickau.
 782 *Greyish black* Slate Clay; from Pottschappel, near Dresden.
 783^a *Reddish grey*, almost *Lavender blue* Slate Clay, traversed with bluish white Stripes, which nearly approaches to Argillite; from Lauban, in Upper Lusatia.

b. Varieties of the External Form.

- 783^b Reddish grey Slate Clay, crystallized in *perfect Cubes*,
 on

on an Argilliferous, though still pretty firm, Lime Stone; from Dusseldorf.

Rem. This last explains the whole enigma, and shews that it is only an after Crystal, the broken pieces prove in the mean while, that it actually at present belongs to this place, and that only a few Calcareous Particles any longer occur in it.

- 784 Slate Clay, with impressions of Rushes; from Wet-
tin.

Rem. There are some vestiges of Fossil Coal in it.

- 785 Slate Clay, with impressions of Fern; from the same
place.

- 786 Slate Clay, with impressions of other Plants; from
Upper Lusatia.

4. JASPER.

Kirwan, 33d Spes. Silic. Genus.

A. Egyptian Jasper.

a. Varieties of the Colour.

- 787 Dark brown exteriorly, but annularly graduating to
yellow, and here and there slightly sprinkled, Eryp-
tian Jasper.
- 788 A similar piece, but in which the Rings are not per-
fectly closed.
- 789 Reddish brown, and yellowish grey Egyptian Jasper,
in pretty broad concentric stripes, round a reddish nu-
cleus.
- 790 Figured Egyptian Jasper, in much more delicate simi-
lar concentric stripes, which surround an oblong yel-
lowish grey nucleus.
- 791 A piece of Egyptian Jasper, consisting of brown, yel-
lowish grey, and greyish white colours, alternating
with each other in such a manner, that the darkest is
always exterior.
- 792 Egyptian Jasper of almost the same colours, but with
a yellowish brown margin, quite exteriorly, so that
the second wreath only is somewhat dark brown, and
internally it presents a kind of Carnation red, and
some white.

793 Extremely

- 793 Extremely delicate, and almost perfectly hair brown, annulated Egyptian Jasper, but in some places spotted and sprinkled with greyish white.
- 794 A piece of Egyptian Jasper, of a partly reddish and greyish white, partly brown colour, of which the first predominates, and is only encompassed by the latter in delicate veins.
- 795 Milk white and brown Egyptian Jasper, under various shades, rather straightly striped, than concentrically annulated, with very few arborizations.
- 796 Greyish white Egyptian Jasper, mixed with some red, and Chesnut brown, so figured that on one side the latter colour represents the trunk of a tree with sprouting branches.
- 797 Yellowish brown Egyptian Jasper, with numerous small arborizations; from Frisee in Lorrain.
- 798 Rather darker yellowish brown Egyptian Jasper, with numerous confused arborizations, and some intermixed Baroselenite; from the same place.

Rem. Both pieces were considered there as Woodstone.

- 799 A piece of Egyptian Jasper, which is figured exteriorly with olive almost leek green and yellow, but interiorly with yellowish brown, pale reddish brown and white, the two latter colours encompass a nucleus, wherein the shading, (to a somewhat lively imagination) represents the ruins of an antient building.

Rem. All the foregoing Specimens except the Lorrain ones, are from Suez in Egypt, and are fragments of pebbles.

b. Varieties of the Fracture.

- 800 Fragments of Egyptian Jasper, in which the conchoidal fracture and the slightly glimmering lustre, (especially the latter), are very distinctly visible.

B. Striped Jasper.

- 801 Pale yellowish grey Jasper, with partly broad, partly narrow Lavender blue stripes; from Wolfitz near Frohburgh in Saxony.

802 Brownish

- 802 Brownish red and greenish grey, rather narrow striped Jasper; from Gnauldstein in Saxony.
- 803 Partly mountain green, partly greenish and yellowish white, Lavender blue and brownish red, Striped Jasper; from the same place.
- 804 Very dark mountain green and reddish brown, Striped Jasper; from the same place.
- 805 Yellowish white and reddish, almost clove brown Striped Jasper; from the Hartz.

Rem. It is found there on the Rubble stone but is not near so beautiful as the Saxon.

C. Porcellanite.

Kirwan, 34th Spec. Silik. Gsch.

- 806 Pale pearl grey Porcellanite, with brick red Iron Ochre in the rifts; from Schweinehütz, near Oßiek, in Bohemia.
- 807 Flat Conchoidal Porcellanite, the colour of which is intermediate between Pearl grey and Lavender blue, but nearly approaching to the latter; from the same place.

D. Common Jasper.

a. Varieties of the Colour.

- 808 Greyish white Jasper; from Mentz, at which place it is found in pebbles.
- Rem.* It is nearly annulated as the Egyptian Jasper.
- 809 Ochre yellow, almost yellowish brown Jasper; from Schneeberg.
- 810 Isabella yellow, partly lighter, partly darker Spotted Jasper; from Kuren near Altenburg.
- 811 Jasper passing from Isabella yellow to Ochre yellow at the margin, with large red spots; from Bohemia.
- 812 A narrower yellow stripe of Jasper, which borders red ditto; from the same place.
- 813 Honey yellow, somewhat white, and red spotted Jasper, surrounded by flint.

P

814 Jasper

- 814 Jasper, on one side *light yellow*, and on the other passing into *red*, in flint.
- 815 *Full Lemon yellow* Jasper, mixed with *green*; from Bohemia.
- 816 *Yellowish brown* Jasper; from the Adam Heber at Schneeberg.
- 817 *A little darker, yellowish brown* Jasper; from Montatsch, in Hungary.
- Rem.* It is there taken for Pitchstone.
- 818 A piece of common Jasper, of an intermediate colour between *yellowish* and *liver brown*; from Traasdorf, near Kemnitz.
- 819 *Liver brown* Jasper; from the same place.
- 820 *Dark liver brown*, nearly *blackish brown* Jasper, striped with *yellowish brown*, with adhering decayed Granite; from the Mulichschat, near Eibenstein.
- 821 *Blackish brown* Jasper, spotted with *yellow*; from Auerwald, near Kemnitz.
- 822 *Dark Cochineal red* Jasper, mixed with *brick red* and *brown*; from the same place.
- 823 *Reddish brown* Jasper; from Zwickau.
- 824 *Dark brownish red* Jasper with adhering granite on both sides; from the Spizleite, near Schneeberg.
- 825 Somewhat *lighter brownish red* Jasper, with inlaying native Bismuth; from the Erzengel, at Johann Georgenstadt.
- 826 *Full blood red* Jasper, traversed by Quartz veins; from the same place.
- 827 Polished Jasper of an intermediate colour between *blood* and *brick red*, with adhering Quartz; from Freiberg.
- 828 *Dark Verdigris green*, spotted with *reddish brown* Jasper; from Turnau in Bohemia.
- 829 Partly *dark Mountain green*, partly *olive* and even *Canary green* Jasper, mixed with *brick* and *blood red*, and also with disseminated Pyrites; from Orenburg.
- 830 *Dark greenish grey*, and *greyish white* striped, common Jasper, with adhering Iron shot Indurated Clay; from Schwenzschütz, near Osiek in Bohemia.

Rem. The transition into Porcellanite may be observed in some measure in this Specimen.

b. Varieties of the External Shape.

- 831 *Massive* Jasper, with walls of decayed Argillite on both sides; from Schneeberg.
- 832 *Coarsely disseminated* Jasper, with some Martial Pyrites and Quartz, upon which crystals of Sparry Iron Ore occur; from Calverberg, near Schemnitz.
- Rem.* This is the Sinople of that place.
- 833 A moderately sharp cornered, but in some places blunt edged piece of Jasper; from Upper Lusatia.
- 834 A flat Jasper Pebble, with a Quartz groupe in its centre; from the Palatinate.

c. Varieties of the Fracture.

- 835 Jasper of a tolerably large and imperfectly conchoidal fracture; from Hartenstein, near Zwickau.
- 836 Liver brown Jasper of a perfectly minute conchoidal fracture; from Auerwald, near Kemnitz.
- 837 The same of a completely minute conchoidal fracture, traversed in the rifts by minute groupings of Quartz; from Freiberg.
- 838 Jasper of so imperfect conchoidal a fracture, that it is intermediate between that and minute Splintery; indeed in some places it runs entirely into the latter, and thence the whole passes into Hornstone; from Saaz, in Bohemia.

5. OPAL.

*Kirwan, 27th Spes. Silic. Gen.**A. Oriental Opal.*

- 839 A Milk white Oriental Opal, which from its interior mutably reflects yellowish and reddish; from the Carpathian Mountains.
- 840 Bluish grey Oriental Opal, which from its interior reflects Orange yellow and reddish, and forms a small slip in decomposed Gneiss; from Freiberg.

B. Common Opal.

- 841 A polished Milk white Opal, enclosing a drop of water.

- 842 Very pale greenish grey Opal; from Kosemütz, in Silesia.
 843 *Disseminated and Superficial* Opal in Granite; from Gluhzburg, at Karlsfeld, near Eibenslok.
 844 Opal in *angular pieces*; from the same place.
 845 Opal, with a tolerably perfect *conchoidal* fracture; from the same place.
 846 Opal, the fracture of which is intermediate between *conchoidal* and *even*; from the same place.

C. *Semi Opal.*a. *Varieties of the Colour.*

- 847 *Yellowish grey* Semi Opal; from Freiberg.
 848 *Pearl grey* Semi Opal striped with a little white; from Hungary.
 849 *Dark Pearl grey*, inclining to brownish, Semi Opal; from the same place.
 850 *Honey yellow* Semi Opal, in a compound of Jasper and Indurated Clay, with adhering decomposed Argillite; from Telkobania, in Upper Hungary.
 851 *Dark Wax yellow*, somewhat inclining to brown, Semi Opal, with overlaying, somewhat decayed ditto; from the same place.
 852 *Yellowish brown*, passing into *Liver brown*, Semi Opal; from Kosemütz.

Rem. It should be considered a Jasper, were it not translucent at the edges.

- 853 *Reddish brown* Semi Opal, still more resembling Jasper, from the same place.
 854 *Perfectly Liver brown* Semi Opal; from Primerisdorf in Austria,

Rem. It is there considered by some as Hornstone, and by others as Pitchstone.

- 855 *Greenish grey* Semi Opal, between decomposed Pitchstone and Indurated Clay; from Kosemütz.
 856 A Slip of *Mountain green*, passing into *Verdigris green*,
 Semi

Semi Opal, on Basalt which is become somewhat porous through decay; from Austria.

- 857 *Apple green*, slightly inclining to *Verdigris green*, Semi Opal; from Kosemütz.

b. Varieties of the External Shape.

- 858 *Massive* Semi Opal, with adhering decayed ditto, on Gneiss; from the Donat, near Freiberg.
- 859 *Coarsely disseminated* Semi Opal, in Hornstone, with an adhering decayed Rockstone; from Johann Georgenstadt.
- 860 An obtuse angled, somewhat *sharp edged* piece of Semi Opal; from Eibenstok.

c. Varieties of the Fracture.

- 861 *Perfectly flat conchoidal* Semi Opal in Porphyry; from Saxony.

Rem. It is besides quite transparent, on the other hand Nos. 854a and 847, are only translucent, but the remaining ones are translucent only at the edges.

- 862 An intermediate Fossil between Opal and Hornstone, by the alteration of the *conchoidal* into the *fine splintery* fracture; from Kosemütz.
- 863 An intermediate Fossil between Opal and common Quartz, with an *imperfectly conchoidal* fracture, *glimmering* Lustre and translucent at the edges; from Freiberg.

D. Ligniform Opal.

- 864 Milk white, slightly inclining to Pearl grey, Ligniform Opal, striped with brown on the upper part; from the Liptau County in Upper Hungary, as are also the two following Specimens.
- 865 Yellowish grey, yellowish brown and black striped, Ligniform Opal, whose fracture on the whole is *thick and curved Slaty*, but in the single Slates *conchoidal*.
- 866 Yellowish brown, Hyacinth red, and in some places striped Ligniform Opal, with a tolerably perfect conchoidal

choidal fracture, but at the same time fibrous appearance, this is considered there by some as Pitchstone.

6. PITCHSTONE.

Kirwan, 3d Family, 27th Spec. Silic. Gen.

a. Varieties of the Colour.

- 867 Dark blackish green Pitchstone; from Meissen, from whence all the remaining ones, No. 869 excepted, come.
- 868 Very dark leek green passing into black, Pitchstone, with disseminated Felspar.
- 869 Leek green Pitchstone, on one side passing into mountain green, and on the other into yellowish, with inlaying Calcedony; from Hungary.
- 870 Light leek green in some places inclining to olive green, Pitchstone, penetrated in the rifts with Ironshot Mica.
- 871 Mountain green slightly inclining to olive green, ditto, Ironshot also in the rifts.
- 872 Full mountain green Pitchstone.
- 873 Pitchstone of an intermediate colour between mountain and olive green.
- 874 Olive green Pitchstone, intermixed with a large quantity of Felspar.
- 875 Pitchstone, from the olive green strongly inclining to yellowish, traversed by Carnation red Felspar.
- 876 Olive green Pitchstone strongly inclining to Honey yellow.
- 877 Pitchstone, whose colour passes from green into dark and light reddish green.
- 878 Brownish red Pitchstone, in some places mixed with olive green.
- 879 Dark brick red passing into brownish red Pitchstone.
- 880 Olive green and brick red streaked Pitchstone.

b. Varieties of the Distinct Concretions.

- 881 Pitchstone of large granular distinct Concretions.
- 882 Grey Pitchstone of partly large, partly coarse granular distinct Concretions.

Rem. In this and the foregoing Specimen the smaller Distinct Concretions lie in the larger.

- 883 Red Pitchstone, of *small granular* distinct Concretions.
 884 Green Pitchstone with *small*, and in some places *fine granular* distinct Concretions.

c. Varieties of the Transparency.

- 885 Bright olive green inclining to reddish, Pitchstone, which in some places is *quite transparent*, but in others *semitransparent* in an inferior degree.

Rem. A very rare variety.

- 886 Mountain green Pitchstone, partly *translucid* and partly so only at *the edges*.
 887 Olive green Pitchstone, *faintly* transluced at the edges.

Rem. The imperfect conchoidal fracture of this fossil is principally obvious in No. 868, 881, & 885. But that which approaches to the splintery, in No. 878, 883, & 884.

7. FELSPAR.

Kirwan, 38th Spec. Silic. Gem.

A. Common Felspar.

a. Varieties of the Colour.

- 888 *Milk white* Felspar; from Freiberg.
 889 *Bluish grey* Felspar; from the same place.
 890 *Reddish white* Felspar, with a little Mica and Quartz from Carlsbad in Bohemia.
 891 *Pale carnation red* Felspar, with some superficial black Schörl in the rifts; from Siebenlehn near Freiberg.
 892 *Dark carnation red* Felspar, mixed with some Quartz, and a little Mica; from the same place.
 893 *Pale olive green* inclining to *whitish*, Felspar, in a Porphyritic mixture; from Hungary.

b. Varieties of the External Shape.

- 894 *Massive* Felspar mixed with some Quartz and Mica; forming Granite, with adhering Gneiss on both sides; from Hilbersdorf near Freiberg.

895 *Coarsely*

- 895 *Coarsely disseminated Felspar, in Granite; from Bautzen in Upper Lusatia.*
- 896 Felspar crystallized in small, almost very small perfect Rhombs, with crystallized Quartz, on indurated Chlorite; from Gieshübel.
- 897 Felspar crystallized in oblique Hexahedral Prisms, in Quartz; from Professor Pini's shaft at Schneeberg.

c. Varieties of the Fracture.

- 898 A piece of Felspar with a very distinct, perfectly plain foliated fracture; from Freiberg.

d. Varieties of the Fragments.

- 899 A perfect Rhomboidal fragment of Felspar, in which the four specular surfaces are very distinct, with a little inlaying Quartz, and a very small quantity of Mica; from the same place.

e. Varieties of the Distinct Concretions.

- 900 Felspar, with large granular distinct Concretions and much inlaying black Schörl; from Siebenlehn near Freiberg.
- 901 Rather smaller large granular, in some places coarse granular Felspar, with a little disseminated Quartz, and a very little Mica; from Geier in the Erzgebirge.
- 902 White Felspar, of small granular distinct Concretions, in some places Rhomboidally crystallized, mixed with a good deal of Quartz, and some Mica; from Hilbersdorf near Freiberg.
- 903 A piece of Felspar of oblong granular, nearly columnar distinct Concretions; from the same place.

f. Transitions.

- 904 A Rhomboidal fragment of Felspar, reflecting some bluish grey from the specular surfaces, therefore passing into a following variety; from Geier.

- 905 A somewhat altered Felspar, slightly resembling Quartz; from Freiberg.
- 906 Canary green Felspar decomposed to *Steatites*, on Granite; from Ehrenfriedersdorf.
- 907^a Felspar almost perfectly changed to *Porcelain Clay*, associated with a good deal of Quartz, and some Mica, in the form of Granite; from Johann Georgenstadt.

B. *Petrilite*.

Kirwan, 40th Spec. Silic. Gen.

- 907^b Massive dark brownish red *Petrilite*, in a mixture of Felspar and Talc, on Gneiss; from Ehrenfriedersdorf?
- 907^c A similar piece, but in which the Cubic fragments, together with most of the other characters are very distinct, with the same mixture, in which moreover some Quartz occurs, on Gneiss; from the same place.

C. *Labradore Stone*.

Kirwan, 39th Spec. Silic. Gen.

a. *Varieties of the Colour*.

- 908 Greyish black *Labradore Stone*, reflecting silvery white, with delicate azure blue parallel stripes.
- 909 Grey and yellowish white striped *Labradore Stone*, reflecting, on the whole, azure blue.
- 910 Rather lighter azure blue *Labradore Stone*, in some places reflecting iridescent colours.
- 911 Sky blue *Labradore Stone*, here and there reflecting Pinchbeck brown.
- 912 Dark sky blue *Labradore Stone*, reflecting moreover, Gold yellow.
- 913 *Labradore Stone*, reflecting dark sky blue, with Gold yellow margins.
- 914 Verdigris green *Labradore Stone*, with azure blue margins.
- 915 Verdigris green *Labradore Stone*, slightly inclining to sky blue, traversed by narrow grey parallel stripes.

- 916 *High grass green*, passing into *Canary green* Labradore Stone, intercepted by *greyish white* stripes.
- 917 Still somewhat *lighter*, a little more inclining to *Canary green*, Labradore Stone.
- 918 A piece of Labradore Stone of an intermediate colour between *grass* and *Canary green*, traversed by *azure blue* and *dark Pinchbeck brown* stripes.
- 919 Labradore Stone with delicate *high grass green* veins, and in some places, *Gold yellow*, and *azure blue* dots.
- 920 Labradore Stone reflecting *high Canary green* throughout.
- 921 A piece of Labradore Stone, which displays oblong, partly *Gold yellow*, partly *greenish*, *azure blue* bordered stripes.
- 922 *Gold yellow* slightly inclining to *Pinchbeck brown*, here and there dotted with *azure blue*, Labradore Stone, at first sight appearing grey and white striped, traversed by certain metallic particles, which, as the specimen is polished on both sides, are not readily recognizable, but they resemble native Bismuth.
- 923 Labradore Stone, reflecting *dark Gold yellow* throughout, in some places shaded with *violet blue*, but here and there intercepted by white stripes.
- 924 Labradore Stone, reflecting *Copper red*, *Gold yellow*, *azure* and *sky blue*, in more or less broad stripes.
- 925 Labradore Stone, with large *Pinchbeck brown* spots, encircled by *sky* and *azure blue*.
- 926 Dark *Copper red*, veined with *azure blue*, Labradore Stone.
- 927 Labradore Stone, displaying oblong *Copper red* stripes, sprinkled with *azure* and *sky blue* dots.
- 928 Labradore Stone, also displaying *Copper red*, but more or less shaded by *Gold yellow*, *azure* and *sky blue*.
- 929 Labradore Stone, reflecting *pale purple red*, bordered by *sky blue*, and shaded with *Copper red*.
- 930 Labradore Stone, reflecting very dark *purple red*, traversed by *white* stripes.
- 931 Labradore Stone, with small *silvery white* spots, interrupted by *black*.
- 932 Labradore Stone, reflecting collectively, *silvery white*, and slightly pidgeon necked, but particularly and in another direction, *Copper red*, *azure blue* and *Canary green*.

- 933 Labradore Stone, reflecting *silver white* throughout, without alteration in other positions.
- 934 Labradore Stone, reflecting *Tin white*, and shaded with *azure blue*; also, with that inlaid Fossil N° 922, which must not be considered as the cause of the reflection, and is also visible on the other side.
- 935 Labradore Stone, collectively pigeon neck variegated, but partially, and held in another position, reflecting *silver white*, and again in another, *Gold yellow* and *Canary green* in spots, bordered with *azure blue*, this specimen is mixed with Hornblende.
- 936 Labradore Stone, reflecting *Pinchbeck brown*, *purple red*, *azure blue*, and *sky blue*, but in a direction at right angles, *silvery white*, the whole spotted with white, and mixed with Hornblende, and the supposed Bismuth.
- 937 Labradore Stone, reflecting *Tin white* and *Canary green*, shaded by *purple red* and *azure blue*.

b. Varieties of the External Shape.

- 938 *A Pebble* of Labradore Stone, which displays Metallic, particularly green, colours; from Ingermanland.

c. Varieties of the Fracture.

- 939 A piece of Labradore Stone, of a tolerable *plain foliated* fracture.
- 940 A piece of Labradore Stone, in which the transverse fracture is obviously *Minute Conchoidal*.

d. Varieties of the Distinct Concretions.

- 941 A piece of Labradore Stone, of partly *coarse*, partly *small Granular* distinct concretions.
- 942 Another Labradore Stone, with *Granular* distinct concretions, which pass into the Lamellar.

D. *Moon Stone.*

- 943 Yellowish white, Opalescent Moon Stone; from Ceylon.

8. ARGILLITE.

Kirwan, 16th Spec. Arg. Gen.

a. Varieties of the Colour.

- 944 *Yellowish grey* Argillite; from Schneeberg.
 945 *Greenish grey* Argillite, spotted with *red*; from Ditterbach, beside Lösnitz, near Schneeberg.
 946 *Mountain green* Argillite, on very fine Granular grey Lime Stone.

Rem. It is there considered by some as a striped Jasper.

- 947 *Brownish red* Argillite; from Schneeberg.
 948 *Reddish brown*, strongly inclining to *grey*, Argillite, somewhat Ironshot in the rifts; from Schneeberg.
 949 *Blackish grey* Argillite; from Lehsten near Saalfeld.
 950 *Greyish black* Argillite; from Kunnersdorf.

b. Varieties of the External Shape.

- 951 *Massive* Argillite, which is met with in extensive Strata; from Ronneburg.
 952 *Greenish grey* Argillite, with Arborizations; from Stollberg in the Hartz.

c. Varieties of the Fracture.

- 953 *Thin* and tolerably *straight slaty* Argillite; from Schneeberg.
 954 *Undulatingly slaty*, black Argillite, which also flies into Rhomboidal fragments; from Ditterbach.
 955 Argillite of a *slaty* fracture, approaching to the *coarse grained Earthy*; from Upper Lusatia.
 956 *Greenish grey* Argillite, whose fracture passes completely into the *coarse Splintery*; from Rasendorf in Cobourg.

9. BITUMINOUS SHALE.

Kirwan, 1st Vol. Page 183.

a. Varieties of the Colour.

- 957 *Blackish brown* Bituminous Shale; from Hesse.

958 *Brownish*

- 958 *Brownish black Shale, with a little inlaying Fossil-coal; from Wettin.*

b. Varieties of the External Shape.

- 959 *A piece of Shale, with an impression of the skeleton of a fish, distinguishable by its whitish colour; from Hesse.*

c. Varieties of the Fracture.

- 960 *Thick slaty Shale; from Derbyshire.*
 961 *Thin slaty, very compact Shale; from Wehrau.*

10. ALUMINOUS EARTH.

Kirwan, 2d Vol. Page 19.

- 962 *Brown, in some places decayed, Aluminous Earth; from Mushau, in Upper Lusatia.*
 963 *Brownish black Aluminous Earth, with a fine earthy Fracture, in some measure penetrated with Riffs, which give it an imperfectly conchoidal appearance; from Schwemfal in Saxony.*
 964 *Blackish grey, fine earthy, but on the whole, thick slaty, Aluminous Earth; from Ekhardtsberg, in Thuringia.*

11. ALUMINOUS SLATE.

Kirwan, 2d Vol. Page 19.

A. Common Aluminous Slate.

- 965 *Greyish black Aluminous Slate, with adhering reddish grey indurated Clay; from Reichenbach, in Voigtland.*
 966 *Aluminous Slate, thinly overlaid, on Fibrous Gypsum; from Andrarum, in Scania.*
 967 *Very thin slaty, greyish black Aluminous Slate, mixed with Quartz, and Martial Pyrites; from Limbach, in Voigtland.*
 968 *Aluminous Slate, passing from the slaty into the earthy; from Reichenbach.*

B. Glossy

B. Glossy Aluminous Slate.

- 969 *Massive, tolerably thick slaty, in some places Ironshot, glossy Aluminous Slate; from the same place.*
 970 *Spheroidal Aluminous Slate; from Jemptland.*

12. ROCK ALLUM.

Kirwan, 2d Vol. Page 15.

- 971 *Yellowish white, in some places Isabella yellow, Rock Allum; from Civita Vecchia, in the Papal Territories.*

13. BLACK CHALK.

Kirwan, 3d Family, 5th Tribe of Clays.

- 972 *Greyish black, black Chalk, which marks very strongly; from Italy.*

14. REDDLE.

Kirwan, 1st Family, &c. &c.

- 973 *A piece of Reddle, of an intermediate colour between brick and blood red, with a tolerably fine earthy fracture; from Bohemia.*
 974 *Dark Cochineal, red Reddle, with a small grained earthy fracture; from Upper Lusatia.*

15. NOVACULITE.

Kirwan, 17th Spes. Arg. Gen.

a. Varieties of the Colour.

- 975 *Pale greenish grey Novaculite; from Steiermark.*
 976 *Mountain green Novaculite; from Bareuth.*

b. Varieties of the Fracture.

- 977 *A piece of Novaculite, with a slaty fracture, partly approaching to the conchoidal, but partly also, slightly to the earthy; from the same place.*

- 978 A fragment of Novaculite, of a *slaty* fracture which proves somewhat *splintery*; from Steiermark.

c. *Transitions.*

- 979 Decomposed Novaculite, which appears to pass into Tripoli; from Bohemia.

16. TRIPOLI.

Kirwan, 1st Family, 6th Tribe of Clays.

a. *Varieties of the Colour.*

- 980 Pure white Tripoli, penetrated by a small quantity of a grey Argillaceous stone; from Tripoli.
 981 Yellowish grey Tripoli; from Potschappel near Dresden.
 982 Pale Ochre yellow Tripoli approaching to straw yellow; from the same place.

Rem. In this the earthy fracture is also very distinct.

b. *Varieties of the Density.*

- 983 A piece of Tripoli, which is not remarkably heavy; from Dittfurt.
 984 A piece of Tripoli, which is light, and at the same time shows a somewhat slaty fracture; from Bohemia.

17. MICA.

Kirwan, 5th Spec. Arg. Gen.

a. *Varieties of the Colour.*

- 985 Dark Pinchbeck brown, reflecting a little black, Mica; from Zinwald in Bohemia.
 986 Light Pinchbeck brown, slightly inclining to Copper red, Mica; from the same place.
 987 Mica, reflecting from the Copper red, through Gold yellow, into silvery white; from Geier.
 988 Mica, reflecting from yellowish grey, into silvery white; from the same place.

989 Very

- 989 Very slightly *yellowish*, nearly quite *silvery white* Mica, on greenish grey Mica; from Zinwald.
- 990 Perfectly *silvery white* Mica, in Granite; from Upper Lusatia.
- 991 Mica, verging from the *silvery white*, into *greenish grey*, in Gneiss, accompanied by a slip of Quartz; from Freiberg.
- 992 *Greenish grey* Mica, in Quartz; from Altenberg.
- 993 *Dark mountain green* Mica; from Kemniz, near Freiberg.
- 994 *Black* Mica; from Siberia.
- 995 *Greyish black* Mica, spotted with *silvery white*; from Saxony.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 996 *Massive* Mica, in Quartz, which is mixed with a very little Felspar; from Altenberg.
- 997 *Thickly disseminated* Mica, in a very Quartzite Granite; from Johann Georgenstadt.

b. b. The Regular External Figure.

- 998 Mica, crystallized in somewhat curved, perfect Hexahedral tables, which are small, and are united to each other by their lateral planes, on a Rock Crystal, wherein also some crystallized Tin Ore occurs; from Zinwald.
- 999 Mica, crystallized in perfect Hexahedral Prisms of a middling size, but in some places small, in Granite; from the Prof: Pini's shaft at Schneeberg.
- 1000 Smaller, similar, detached, and broken Crystals; from the same place.

Rem. The lateral planes of these Prisms are so coated and mixed with Iron Ochre, that the edges are rather indistinct, hence they may be mistaken for perfect Cylinders.

c. Varieties of the Fracture.

- 1001 Mica, with a tolerably *straight foliated* Fracture, on Quartz, which is mixed with decomposed Felspar; from Geier.

1002 Slightly

- 1002 Slightly curved foliated Mica, in large grained Granite, with adhering Fluor Spar; from Geier.
- 1003 Undulatingly curved foliated greenish grey Mica; from the same place.

d. *Varieties of the Fragments.*

- 1004 Pinchbeck brown Mica, in thin *Tabular* fragments; from Russia.

e. *Varieties of the Distinct Concretions.*

- 1005 A piece of Mica, with large and very oblong *Granular*, and therefore appearing somewhat *Columnar*, partly distinct concretions; from Geier.
- 1006 A piece of Mica, with large and oblong, and partly coarse and co-angularly *Granular* distinct concretions.
- 1007 A piece of Mica, with coarse *Granular* distinct concretions, on brown Garnet; from Ehrenfriedersdorf.
- 1008 Greenish grey Mica, with small *Granular* distinct concretions; from the same place.
- 1009 Dark greenish grey Mica, with for the most part very small *Granular* distinct concretions; from Johann Georgenstadt.
- 1010 Pinchbeck brown Mica, with partly small, partly fine *Granular* distinct concretions; from Zinwald.

f. *Varieties of the Transparency.*

- 1011 In an high degree *semitransparent*, almost *transparent*, Pinchbeck brown Mica; from the Erzgebirge.
- 1012 Very slightly *translucid*, nearly *opaque*, blackish green Mica; from Kemniz, near Freiberg.

18. GREEN EARTH.

Kirwan, 4th Family, 6th Tribe of Clays.

a. *Varieties of the Colour.*

- 1013 A piece of green Earth of a full mountain green colour; from Saxony.
- 1014 Full Celadon green Earth, the colour of which

R

however

however appears to have a slight admixture of grey.

b. Varieties of the External Form.

- 1015 *Massive* green Earth in Quartz, which is mixed with some indurated Lithomarga and a little crystallized Tin Ore; from Ehrenfriedersdorf.
- 1016 Green Earth, in *Elliptical Masses*, which are partly filled with Calcareous Spar, in an Amygdaloid with a basis of Wacken; from Planiz, near Zwickaw.

19. CALCHOLITE.

2. Kirwan, Vol. 2nd. page 304.

a. Varieties of the Colour.

- 1017 *Dark grass green* Calcholite, in a very ferruginous decomposed Schistose Mica; from the George Wagfort, at Johann Georgenstadt.
- 1018 *Full grass green* Calcholite, in a similar, though less Ferruginous and more Quartzzy Rockstone; from the same place.
- 1019 Superficial Calcholite, passing from the *grass green* into *silvery white*, on a slightly Ironshot Quartz; from the Tannenbaum at Eibenstock in the Erzgebirge.
- 1020 *Perfectly Canary green*, very beautiful Calcholite, very thickly overlaying decayed, exceedingly Argillaceous, Schistose Mica; from Johann Georgenstadt.

b. Varieties of the External Form.

- 1021 *Massive* Calcholite, in Ironshot, partly Cellular Quartz, in some places only superficial; from the Tannenbaum.
- 1022 *Thin Superficial* Calcholite, on a Jasper, resembling Hornstone; from the same place.

Rem. In this, as well as the foregoing specimen, its *foliated fracture* is perceptible.

- 1023 Calcholite crystallized in small rectangular tetrahedral Tables with the terminating planes bevilled, in a very ferruginous, entirely decomposed, Schistose Mica; from the George Wagfort, at Johann Georgenstadt.

1024 Calcholite

- 1024 Calcholite crystallized in very small, indeed in some places minute, Cubes, accumulated like Moss, in Schistose Mica with adhering compact brown Iron-stone, and some Iron Ochre; from the same place.
- 1025 Calcholite crystallized in small, similar tables, but the angles of which seem truncated; from the same place.

20. HORNBLLENDE.

Kirwan, 7th Spec. Arg. Genus.

A. Common Hornblende.

a. Varieties of the Colour.

- 1026 *Greenish black* Hornblende, in Quartz, with a little disseminated Martial Pyrites; from the Altenberg near Schmalzgrube.
- 1027 *Blackish green* Hornblende, with overlaying Siderocalcite; from the same place.
- 1028 *Dark olive green* Hornblende, in fine Splintery Quartz, with some black Schörl Crystals inlaid here and there; from the Fortuna in the Swarzenburg district, near Johann Georgenstadt, in the Erzgebirge.

b. Varieties of the External Form.

- 1029 *Massive* Hornblende, in Quartz, which is mixed with much Arsenical Pyrites, and overlaid with green Earth; from Ehrensriedersdorf.
- 1030 *Coarsely*, and very abundantly, *disseminated* Hornblende in Quartz, forming a Pebble; from Upper Lusatia.
- 1031 *Minutely disseminated* Hornblende, in a mixture of Quartz, and Felspar; from the same place.

c. Varieties of the Fracture.

- 1032 *Very narrow*, and tolerably *parallel striated* Hornblende, in some places mixed with *foliated* Hornblende, in Quartz; from Ehrensriedersdorf.
- 1033 *Scopiformly diverging*, *narrow striated* Hornblende, in Martial Pyrites; from Breitenbrunn.

- 1034 *Partly diverging and partly interlaced, narrow striated Hornblende, (therefore presenting oblong Granular distinct concretions), in Garnet; from the same place.*
- 1035 *Minute foliated Hornblende, with a little Calcareous Spar and Garnet, in Wacken; from Wiesenthal, near Annaberg.*
- 1036 *Large Granular, tolerably broad foliated, Hornblende, in which the oblique disposition of the Lamellæ and the rudiments of a Crystallization may be observed; from the Altenberg, near Schmalzgrube.*

B. *Schistose Hornblende or Hornblende Slate.*

Kirwan, 10th Spec. Arg. Gen.

- 1037 *Perfectly straight slaty Hornblende Slate; from Kemnitz, near Freiberg.*
Rem. Of the single Slates the fracture is perfectly parallel striated.
- 1038 *Curved slaty Hornblende, invested with Quartz in the Rifts, and mixed with Quartz throughout; from the same place.*
- 1039 *Extremely delicately slaty, almost compact, Hornblende Slate, in Quartz; from Upper Lusatia.*

C. *Resplendent Hornblende.*

Kirwan, 9th Spec. Arg. Gen.

- 1040 *Black Labradore Hornblende, reflecting Pinckbeck, brown and silvery white.*
- 1041 *Massive Hornblende, reflecting from the silvery white into gold yellow, (Schiller Spar,) in dark blackish green Serpentine; from the Hartz.*
- 1042 *A fragment of a rectangular tetrahedral Prismatic Crystal of Labradore Hornblende, which internally reflects Pigeon-neck colours, intermixed with partly greyish, partly yellowish grey, Labradore Felspar; from North America.*

D. *Basaltine*

D. *Basaltine.**Kirwan, 8th Spec. Arg. Genus.*

- 1043 Basaltine, in hexhædral Prisms with cuneiform dihædral Summits, the planes of which are set somewhat obtusely on the lateral edges of the Prism which are truncated, the Crystals small, but bordering on the middle size; from Fulda.
- 1044 A macled crystal of this kind, the Prisms coalescing by their lateral planes; from the same place.

12. *WACKEN.**Kirwan, 11th Spec. Arg. Gen.*

- 1045 Rather dark greenish grey Wacken; from Ehrenfriedersdorf.
- 1046 Blackish green Wacken, in which also the other external characters are very distinctly exhibited, with small and very small inlaying Hornblende Crystals and a very little Calcareous Spar; from Weisenthal, near Annaberg.
- 1047 Very dark greenish grey Wacken with a fine Earthy fracture; from Stolpen.

22. *TRAP OR BASALT.**Kirwan, 14th Spec. Arg. Gen.*a. *Varieties of the Colour.*

- 1048 Greenish black Trap, with very fine intermingled Hornblende; from Stolpen in Saxony.
- 1049 Dark blackish grey Trap, mixed with a little Calcareous Spar, part of a boulder found between Eise-nach and Cassel.
- 1050 Light blackish grey Trap, with a little inlaying, decomposed Zeolite and Hornblende; from Jauernik, in Upper Lusatia.
- 1051 Bluish grey Trap, in some places traversed by a yellowish

lowish grey sort of Stone, but which here and there has fallen completely out; from Bokkenheim, near Frankfort on the Maine.

- 1052 Similar Trap, of an intermediate colour between bluish and Pearl grey, with the same Fossil, and in some places the cavities lined with a ferruginous matter.
- 1053 Reddish brown Trap, over run with numerous inlaying small crystals of Hornblende and abundant decayed dots of Calcareous Spar; from Fulda.

b. Varieties of the Fracture.

- 1054 A fragment of a Trap boulder, of a very thick slaty fracture in the Gross; from Upper Lusatia.
- 1055 A fragment of Trap, whose fracture is in the gross thin, but yet indistinctly slaty; from Herzogwald, between Freiberg and Dresden.
- 1056 A fragment of Trap, of a coarse grained, uneven fracture, with very small inlaying Hornblende and Garnet Crystals; from Pferdskopf, in Fulda.
- 1057 Compact black Trap, of a similar fracture passing into the coarse splintery, with much inlaying, in some places very minutely disseminated Hornblende, and some Chrysolite; as also a large piece of Porcelain Clay, which lays exteriorly and appears to be decomposed Felspar; from Upper Lusatia.
- 1058 Trap with a small grained uneven fracture passing into the minute splintery, intermixed here and there with Hornblende, and a little Chrysolite; from the same place.
- 1059 Trap with a fine grained uneven fracture passing into the even, with a large quantity of inlaying Chrysolite, and on one side much decayed; from Lauban in Upper Lusatia.

c. Varieties of the Distinct Concretions.

- 1060 Trap consisting of large granular distinct concretions, with adhering Granite; from the same place.

Rem. The Felspar therein is in some places decomposed, but in others, and that indeed quite contiguous to the Trap, still retains its usual lustre, therefore has not lost its Water of Crystallization.

1061 Trap

- 1061 Trap of *coarse granular* distinct concretions; from the same place.
- 1062 A piece of Trap, of partly *coarse*, partly here and there *small granular* distinct concretions, with a little inlaying, and somewhat altered Chrysolite; the Trap itself also is decomposed superficially; from the same place.
- 1063 Trap of *very small granular* distinct concretions, with much inlaying red Garnet; from Ahrensberg.
- Rem.* This last approaches very nearly to some varieties of the Hornslate which the late Leske discovered in Upper Lusatia.
- 1064 Trap of *fine granular* distinct concretions, with numerous inlaying very small Hornblende Crystals; from Polberg, near Annaberg.
- 1065a. A large pentahædral columnar distinct concretion of Trap, (Figurate Trap or Basalt) with much inlaying, very decayed Chrysolite; from Upper Lusatia.
- 1065b. A similar tetrahædral columnar distinct concretion of Figurate Trap; from the same place.

23. TERRAS.

Kirwan, 2nd Family, 6th Tribe of Clays.

- 1066 *Yellowish grey* Terras; from Blaith near Andernach on the Rhine.
- 1067 *Ochre yellow*, very indurated Terras; from Italy.

24. LAVA.

Kirwan's 2nd Appendix Vol. 1st.

- 1068 Dark black Lava, with an imperfect conchoidal fracture, of partly *coarse*, partly *small Granular* distinct concretions; from Hecla.
- Rem.* It is entirely different from Obsidian, possessing only here and there a slight lustre and not by much so sharp edged.
- 1069 Very dark Ironblack rough Lava, with a Coal still enveloped in it; from Veluvius.

1070 A very

- 1070 A very porous, brown Lava resembling Pumice, with inlaying indistinct Topaz Crystals; from Iceland.
- 1071 Dark brownish black Lava? with a large, rather imperfect conchoidal fracture, as also with Spheroidal impressions in some places.

25. PUMICE.

- 1072 Greyish white, strongly verging to silvery white, Pumice; from the Lipari Isles.
- 1073 Greyish white, here and there slightly Ironshot, scarce observably glimmering, and very indistinctly fibrous, Pumice; from Andernach.

26. LITHOMARGA.

Kirwan's 4th Tribe of Clays.

A. Friable Lithomarga.

- 1074 Pure, and very slightly greyish white Friable Lithomarga, Ironshot in the rifts; from Thiersheim in Bareuth.

Rem. It is here and there intermixed with a little Talc, and the fracture is coarse earthy.

- 1075 Yellowish, here and there reddish white Friable Lithomarga, with a small grained earthy fracture; from the same place.
- 1076 White, fine earthy ditto, from the Stiefmutter at Ehrenfriedersdorf.

B. Indurated Lithomarga.

a. Varieties of the Colour.

- 1077 Pale yellowish white Lithomarga, which passes into Isabella yellow; from Roglitz, in Saxony.
- 1078 Pale Carnation red ditto, with adhering Porphyry; from the same place.
- 1079 Brownish red ditto; from the same place.
- 1080 Lithomarga, of an intermediate colour between Lavender

vender and *Violet blue*; from Planiz, near Zwickau, (Terra Miraculosa Saxoniz.)

1081^a *Lithomarga*, passing from the *bluish grey* into *pearl grey*; from Eibenstock.

1081^b *Liver brown*, here and there slightly *Iron shot*, *Lithomarga*; from England.

Rem. This is very rare and forms the transition into Mountain Soap, since the adhesion to the tongue is infinitely stronger than in the common *Lithomarga*.

1082 *Bluish grey*, a little spotted with white, *Lithomarga*, with adhering dark *Lavender blue Lithomarga*; from Planiz.

1083 *Pale Isabella yellow*, striped with brown and spotted with *violet blue*, *Lithomarga*; from the same place.

1084 *Lavender blue*, traversed by delicate brown stripes, and sprinkled with white, *Lithomarga*; from Planiz.

1085 *Lavender* and *Violet blue Lithomarga*, veined and spotted with *Carnation red*, and *yellowish white*; from the same place.

1086 *Dark Violet blue Lithomarga*, spotted with much *yellowish white* ditto, wherein also delicate *bluish* veins occur, the whole *Iron shot* in the Riffs; from the same place.

1087 *Dark reddish brown Lithomarga* spotted with *Carnation red*, and *yellowish white*; from Rochliz.

b. Varieties of the Fracture.

1088 *Carnation red Lithomarga*, with an *imperfect conchoidal* fracture; from the same place.

1089 *Dark Violet blue Lithomarga*, with a *conchoidal* fracture, which here and there approaches to the *even* on one side, but on the other, somewhat to the *fine Earthy*; from Planiz.

1090 *Yellowish brown*, nearly *Ochre yellow*, *Lithomarga*, spotted with *Violet blue*, with a *fine grained Earthy* fracture; from Upper Lusatia.

1091 *Reddish brown Lithomarga*, with a *very fine grained*, *Earthy* fracture; from Rochliz.

1092 *Dark Lavender blue Lithomarga*, with a *partially coarse grained*, *Earthy* fracture; from Eibenstock.

c. Transitions.

- 1093 A transition from brownish red *Lithomarga* into *Jasper*.
 1094 Ochre yellow *Lithomarga* which passes into *indurated Clay*, and is Iron shot in the Riffs; from Upper Lusatia.
 1095 An intermediate Fossil between *indurated Lithomarga* and green Earth, on Rock Crystal, to the inferior part of which moreover adheres a small Groupe of Fluor Spar, with some Mica, and a small quantity of Copper Pyrites; from Ehrenfriedersdorf.

26. MOUNTAIN SOAP.

1. Kirwan, Page 189.

- 1096 Brownish black Mountain Soap, here and there very delicately sprinkled with yellow; from Olkuzk, in Poland.
 1097 Pearl grey, passing into greyish white, Mountain Soap; from England.

Rem. The former has an Earthy, the latter an intermediate fracture between Earthy and imperfectly Conchoidal, therefore approaches to the foregoing species.

27. YELLOW EARTH.

Kirwan, 2d Family, 3th Tribe of Clays.

- 1098 Yellow Earth, of a perfect Ochre yellow colour; from Wehrau, in Upper Lusatia.

3rd. MURIATIC GENUS.

1. STEATITES.

Kirwan, 6th Spec. Mur. Gen.

A. Common Steatites.

a. Varieties of the Colour.

- 1099 Bright white, very slightly inclining to greyish, Steatites; from Thiersheim, in Bareuth.

1100 Greenish

- 1100 *Greenish white* Steatites, with somewhat darker shades; from the same place.
 1101 *Greenish grey* Steatites; from Norway.
 1102 *Yellowish white* Steatites, spotted with red; from China.

b. Varieties of the External Form.

- 1103 A piece of *Massive* Steatites, which is found in extensive Strata; from Thiersheim.
 1104 *Coarsely disseminated* Steatites, in a mixture of much Mica and some Quartz, and a large quantity of inlaying Tin Ore; from Ehrenfriedersdorf.

Rem. It is extremely probable that it originates from the gradual decomposition of Felspar.

- 1105 *Reniform* Steatites, traversed by a little Iron Ochre; from Thiersheim.
 1106 Steatites with Arborizations; from the same place.
 1107 Steatites crystallized in Hexahedral Prisms of a middling size, terminated by six planes, the edges formed by the meeting of the lateral and acuminating planes, truncated, but in other respects circumstanced as usual, in Massive Steatites; from the same place.

c. Varieties of the Fracture.

- 1108 Steatites with a *coarse grained Earthy* fracture; from the same place.
 1109 Steatites with a *fine Splintery* fracture; from Norway;
 1110 Light Leek green Steatites, of a *coarse splintery* fracture with a little overlaying Mica; from the Erzgebirge.

B. Foliated Steatites.

Kirwan, 3d Family, 69b Spec. Min. Gen.

- 1111 Leek green inclining to Olive green, *curved foliated* Steatites; from Norway.
 1112 Mountain green, partially sprinkled with black, *foliated* Steatites; from Zöbliz.

- 1113 Partly *Massive*, partly *Superficial*, foliated Steatites, passing from the Olive green into Sulphur yellow; from the same place.

2. JADE.

Kirwan, 19th Spec. Min. Gen.

- 1114 Dark Leek green Jade, translucent in a high degree.
 1115 Somewhat lighter, less translucent Jade.
 1116 A piece of Jade, with the ground of the same colour, but with several white linear streaks.

Rem. These are supposed to be from the East Indies.

3. FULLERS EARTH.

Kirwan, 4th Family, 3d Tribe of Clays.

a. Varieties of the Colour.

- 1117 Very pale yellowish green Fullers Earth; from the Gotthelf Shaller, at Johann Georgenstadt.
Rem. It is there considered as Mountain Soap.
 1118 Very pale greenish grey passing into yellowish white, Fullers Earth; from Rosswein, near Freiberg.
 1119 Fullers Earth of an intermediate colour, between Olive green and greenish grey; from the Landsend, in Cornwall.
 1120 Full olive green Fullers Earth; from Rosswein.
 1121 Dark olive green Fullers Earth, with impressions which appear to be the vestiges of very small Quartz Pyramids; from Bedfordshire, in England.
 1122 Full mountain green passing into grass green Fullers Earth; from Rosswein.
 1123 Fullers Earth passing from the mountain green, into leek green; from the same place.

b. Varieties of the Fracture.

- 1124 Yellowish grey Fullers Earth, of a tolerably fine earthy fracture; from the Landsend.

1125 Greenish

- 1125 Greenish white Fullers Earth, whose fracture passes into the *imperfect conchoidal*, somewhat Iron shot in the Rifts; from Schonburg.

Rem. This constitutes the transition into Pipe Clay.

- 1126 Green Fullers Earth whose *coarse earthy* fracture appears to pass into the *Slaty*; from Rosswein.

4. BOLE.

Kirwan, 3d Family, 3d Tribe of Clays.

- 1127 Dark *Isabella yellow*, inclining to *Ochre yellow*, Bole, (*terra sigillata*) from Striegau.
 1128 Dark *Isabella yellow*, passing into *Carnation red* and *brownish*, coarsely disseminated Bole, in Basalt; from Upper Lusatia.
 1129 Pale liver brown Bole, in angular fragments; from the Island of Lemnos.

5. SERPENTINE.

Kirwan, 8th Spec. Mur. Gen.

a. Varieties of the Colour.

- 1130 Dark *blackish green* Serpentine, with adhering foliated Steatites; from Zöbliz.
 1131 A little *lighter*, *similar* Serpentine mixed with some *brown*, inlaying foliated Steatites, and also veins of Amianthus; from the same place.
 1132 *Olive green* Serpentine intersected by much Amianthus; from the same place.
 1133 Somewhat lighter *olive green* Serpentine; from the same place.
 1134 Dark *Canary green* Serpentine, veined with much *black*; from Waldheim, in Saxony.
 1135 Full *Canary green* Serpentine, here and there with dendritic delineations; from Zöbliz.
 1136 *Light Canary green*, passing into *Sulphur yellow*, Serpentine, striped with *black*; from the same place.
 1137 *Very dark reddish brown* ditto, with overlaying *Sulphur yellow* foliated Steatites; from the same place.

- 1138 A little lighter *reddish brown* Serpentine, spotted with green; from the same place.
- 1139 *Reddish brown*, spotted with *brownish red*, Serpentine, with Amianthine veins, and foliated Steatites, as also inlaying Garnet; from the same place.
- 1140 *Reddish brown* Serpentine, spotted with *blood red* and *white*; from the same place.
- 1141 *Reddish brown* Serpentine, veined with *blood red*; from the same place.

b. Varieties of the Fracture.

- 1142 *Very coarse splintery green* Serpentine, mixed with red and passing into Steatites; from the same place.
- 1143 A piece of Serpentine with a somewhat *smaller splintery* fracture, and much adhering Mica; from Waldheim.
- 1144 *Fine splintery Olive green* Serpentine, with adhering indurated Lithomarga; from Zöbliz.
- 1145 *Very fine splintery*, passing into the *even*, Serpentine, with numerous inlaying Garnets; from the same place.

c. Varieties of the Distinct Concretions.

- 1146 *Light Olive green* Serpentine, of *very small granular* distinct concretions; from Waldheim.
- 1147 *Green red-spotted* Serpentine, of *fine granular* distinct concretions, with some inlaying Garnets; from Zöbliz.

6. TALC.

Kirwan. 3th Spes. Min. Gem.

A. Talcite.

- 1148 *Very fine Talcite*, of *small scaly* particles, and *reddish white* colour; from Freiberg.
- 1149 *Slightly coherent*, *silvery white*, *fibrous Talcite*; from Gera.

1150 *Quite*

- 1150 Quite coherent, almost reniform, Talcite; from the same place.

B. Common Talc.

a. Varieties of the Colour.

- 1151 Perfectly *Apple green*, mutably reflecting *silvery white*, Talc; from the Venetian States.
 1152 Talc, reflecting from the *Apple green*, slightly into *yellowish*; from the same place.

b. Varieties of the External Form.

- 1153 *Massive* Talc, of coarse and small granular distinct concretions, and the same indurated, which is mixed with a large quantity of Emery; from Ochsenkopf, at Schwarzenberg, in the Erzgebirge.
 1154 A fragment of a Talc Nodule, the fracture of which is very *slaty*; from Tyrol.

C. Pot-Stone.

Kirwan. 7th Spec. Mus. Gen.

- 1155 *Greenish white*, reflecting changeably into *silvery white*, Pot-Stone; from Ochsenkopf.
 1156 *Greenish grey*, spotted with *reddish*, Pot-Stone; from the same place.
 1157 Very *thin slaty* Pot-Stone, with inlaying Garnets; from Tyrol.
 1158 *Thin and curved slaty* Pot-Stone, mixed with Quartz; from the same place.
 1159 Very *thick and curved slaty* Pot-Stone; from Ochsenkopf.

7. ASBESTUS.

A. Suber Montanum.

Kirwan. 12th Spec. Mus. Gen.

a. Varieties of the Colour.

- 1160 *Pure white* Suber Montanum; from Sahlberg, in Sweden.
 1161 *Yellowish*

- 1161 *Yellowish grey* Suber Montanum, intersected with silvery white Talc, here and there also yellowish brown; from the same place.

b. Varieties of the Fracture.

- 1162 Suber Montanum of an indistinctly curved foliated fracture, on Serpentine which is mixed with Steatites; from the same place.
- 1163 A piece of ditto, with a very confusedly interwoven fibrous fracture; from Johann Georgenstadt.

B. Amianthus.

Kirwan. 11th Spec. Min. Gen.

a. Varieties of the Colour.

- 1164 Perfectly silvery white Amianthus; from the Valley Serre, in Piedmont.
- 1165 Greenish white, inclining to Apple green; Amianthus; from Zips, in Upper Hungary.
- 1166 Very light Mountain green Amianthus, inclining to greenish grey; from Salberg, in Sweden.
- 1167 Olive green, reflecting silvery white, Amianthus; from Zöbliz.
- 1168 Ditto, of a soiled Olive green, passing into brownish; from Voigtland.
- 1169 Pale Carnation red, very strongly inclining to white, Amianthus; from Silesia.
- 1170 Ochre yellow ditto; from Portugal.

b. Varieties of the Fracture.

- 1171 Extremely delicately fibrous Amianthus, with Suber Montanum, on Quartz; from Schelkowa Gora, on the Ural, in Siberia.
- 1172 Exceedingly long and delicately fibrous ditto; from the Valley Serre, in Piedmont.
- 1173 Cohering fibrous ditto; from Salberg, in Sweden.

1174 Still

- 1174 Still more *closely coherent*, and indeed *curved*, *fibrous* ditto; from Kuttenberg, in Bohemia.

Rem. This is the transition into Asbestus.

C. *Common Asbestus.*

Kirwan 9th Spec. Min. Gen.

a. *Varieties of the Colour.*

- 1175 Somewhat indistinctly *Olive green*, mixed with *greenish grey*, Asbestus; from Sweden.
 1176 *Light Mountain green*, reflecting *silvery white*, ditto; from Tyrol.
 1177 A piece of *Leek green* ditto; from Zöbliz.
 1178 *Full Olive green*, reflecting *Gold yellow*, ditto; from Grundorf, in Silesia.

Rem. This is the transition into Amianthus.

b. *Varieties of the External Shape.*

- 1179 *Massive* Asbestus, in *Serpentine*; from Zöbliz.

c. *Varieties of the Fracture.*

- 1180 Extremely delicate, *straight* and *parallelly* fibrous Asbestus; from the same place.
 1181 Somewhat *curved*, yet *parallelly* fibrous ditto; from the same place.
 1182 *Curved*, and partly *undulatingly*, fibrous ditto, with some *Serpentine*; from the same place.

d. *Varieties of the Fragments.*

- 1183 Very long *splintery* fragments of Asbestus; from Zöbliz.
 1184 A proportionably thicker, *curved* fragment of Asbestus; from the same place.

8. SAPPARE.

Kirwan. 4th Spec. Arg. Gen.

- 1185 Massive bluish grey, here and there Sky blue, translucent Sappare, mixed with some Quartz; from Tyrol.

9. ACTYNOLITE.

A. *Asbestoidal Actynolite.*a. *Varieties of the Colour.*

- 1186 *Greenish, nearly silvery white, Asbestoidal Actynolite, with Iron Ochre; from the Catharina, at Raschau.*
- 1187 *Greenish grey massive ditto, mixed with much brown Blende; from Schwarzenberg.*

b. *Varieties of the Fracture.*

- 1188 *A piece of very delicately diverging fibrous ditto, mixed with Iron Ochre and Martial Pyrites; from the Catharina, at Raschau.*
- 1189 *Delicate and parallel fibrous ditto, on Serpentine and Steatites which is mixed with some Mica; from Bareith.*

Rem. This passes into the following variety.

B. *Common Actynolite.*a. *Varieties of the Colour.*

- 1190 *Reddish, and also greenish white, Common Actynolite, on and in Granular Limestone; from Tyrol.*
- 1191 *Olive green Common Actynolite, with much inlaying brown Blende; from Ehrenfriedersdorf.*
- 1192 *Dark Mountain green, inclining to Leek green, ditto; from the same place.*

b. *Varieties*

b. Varieties of the External Shape.

- 1193 *Massive, and also disseminated, Common Actynolite, in brown Blende, which is mixed with Quartz; from Ehrenfriedersdorf.*
- 1194 *Green ditto, crystallized in perfect, somewhat compressed, Hexahedral Prisms, mixed with a large quantity of Copper Pyrites, and invested with a little blue Copper Ore; from Zillerthal, in Tyrol.*
- 1195 *Ditto, crystallized in similar, but very compressed, Hexahedral Prisms, which are scopiformly aggregated, with Iron Ochre adhering underneath, and moreover mixed with a little Blende; from Krebsberg, at Ehrenfriedersdorf.*

Rem. The external shape in this Specimen passes into columnar distinct concretions.

- 1196 *Common Actynolite, crystallized in larger and more slender, perfect Hexahedral Prisms, irregularly traversing and imbedded in Common Talc; from Zillerthal, in Tyrol.*

c. Varieties of the Fracture.

- 1197 *Very broad, and nearly parallel striated, Common Actynolite, mixed with some Quartz; from Ehrenfriedersdorf.*
- 1198 *Narrow, and scopiformly diverging striated, ditto; from Gieshübel, in the Erzgebirge.*

d. Varieties of the Distinct Concretions.

- 1199 *Yellowish white ditto, of very oblong large granular distinct concretions, in Granular Limestone; from Tyrol.*
- 1200 *A piece of Common Actynolite, in which, at the same time may be observed, large and coangular, and also here and there, oblong granular, as well as small and fine granular distinct concretions, with some inlaying Quartz, brown Blende, and Iron Ochre; from Ehrenfriedersdorf.*

e. *Varieties of Transparency.*

- 1201 In an high degree *transparent*, crystallized Common Actynolite, in small grained Talc; from Zillerthal, in Tyrol.

C. *Glassy Actynolite.*

Kirwan, 18th Spec. Min. Gen.

- 1203 A piece of Glassy Actynolite, of an intermediate colour between Mountain and Leek green, with adhering Talc; from Tyrol.
- 1204 Glassy Actynolite, crystallized in broad, and very long Hexhædral Prisms of a middling size, which for the most part are columnarly aggregated on indurated Talc; from the Fadengrube, in Carinthia.
- 1205 A piece of Glassy Actynolite, with a festooned, perfectly parallel, delicately fibrous fracture; from Tyrol.

4th. CALCAREOUS GENUS.

1. *AGARIC MINERAL.*

Kirwan, 1st Family 2d Spec. Calc. Gen.

- 1206 Yellowish white Agaric Mineral, consisting of dusty particles; from Walkenried, in Anhalt.

2. *CHALK.*a. *Varieties of the Colour.*

- 1207 Perfectly pure white Chalk, on Flint; from the English Coast.
- 1208 Yellowish grey, spotted with yellowish white, Chalk; from Schonen.

Rem. This is a scarce (impure) variety.

b. *Varieties*

b. *Varieties of the Fracture.*

- 1209 A piece of Chalk with a *fine earthy fracture*; from the County of Essex.
- 1210 Chalk, with a *coarse grained earthy fracture*; from the same place.

3. LIMESTONE.

A. *Compact Limestone.*a. *Varieties of the Colour.*

- 1211 *Greyish black*, almost dark black, compact Limestone, in greyish white ditto; from Birkenthal in the Forest of Hartzburg.
- 1212 *Greyish black* Compact Limestone; from St. Triphon, in Berne.
- 1213 Somewhat paler *blackish grey* Compact Limestone, mixed with greyish white granular ditto, in slips; from Nuremburg.
- 1214 *Dark smoke grey* ditto, with superficial Martial Pyrites; from Schlangenberg, in Siberia.
- 1215 *Perfectly smoke grey* ditto, intersected by a slip of granular ditto; from the Hartz.
- 1216 *Light smoke grey*, a little inclining to *yellowish*, ditto, with a narrow intersecting slip of sparry Iron Ore, and many very small petrified Muscles; from Iberg, in the Hartz.
- 1217 *Very light smoke grey* ditto, with a little overlaying Micaceous Clay; from Maxen, in Saxony.
- 1218 *Yellowish grey* ditto, with adhering granular ditto; from Upper Lusatia.
- 1219 Ditto passing from *yellowish grey* into *Isabella yellow*, with the figures of Insects engraved on it; from Lauter, near Cobourg.
- 1220 *Brownish red* compact Limestone; from Kalkgrün, in Saxony.
- 1221 *Light brownish red* Limestone, in *greyish white* ditto, with adhering Argillite; from Upper Lusatia.
- 1222 *Pale yellowish grey* Limestone, spotted with black; from Bareuth.

1223 *Isabella*

- 1223 *Isabella yellow* Lime Stone, with small brown isolated Arborizations; from Pappenheim, in Suabia.
- 1224 Similarly delineated Lime Stone, but in which the arborizations represent a perfectly regular grove; from Eichstadt.
- 1225 Similar, *Isabella yellow*, much inclining to grey, compact Lime Stone, with black dendritic delineations, which represent much taller trees; from the vicinity of Gottingen.
- 1226 *Isabella yellow* Lime Stone, with extremely narrow arborizations; from Salzthal.

b. Varieties of the External Shape.

- 1227 A boulder of grey compact Limestone, with a little disseminated Martial Pyrites; found near Marienberg.
- 1228 A polished tablet of grey Limestone, with an inlaying *Encrinite*; from Poland.
- 1229 Grey Limestone, with very numerous inlaying *Pectinites* and *Mitulites*; from the Venetian Territories.
- 1230 Similar grey Limestone, with impressions of *Mitulites*, *Chamites* and *Pectinites*, and also some still inlaying ditto; from the same place.
- 1231 Reddish and yellowish brown Limestone, with small round Petrifications which appear to be *Entrochites*.
- 1232 A beautiful Lumachella Marble, reflecting full Copper red; from Bleyberg, in Carinthia.
- 1233 Lumachella Marble, reflecting partly red, partly green, but in much smaller particles; from the same place.
- 1234 A grey, variegated, compact Limestone, reflecting from still much smaller particles, and mixed with white Petrifications; from the same place.

b. Varieties of the Fracture.

- 1235 An extremely fine splintery passing into even, compact Limestone; from Wirtemberg.
- 1236 Very small splintery, slightly inclining to the uneven, compact Limestone, with intersecting granular Limestone at the side; from Upper Lusatia.

1237 Small

- 1237 *Small splintery compact Limestone*; from Maxen.
- 1238 *Coarse splintery compact Limestone*, with adhering Marle; from Thuringia.
- 1239 *Compact Limestone* with a *coarse grained uneven* fracture; from Cobourg.
- 1240 *Minute and imperfectly Conchoidal*, Isabella yellow compact Limestone, with a very beautiful regular dendritic delineation, whose length exceeds seven inches; from Pappenheim, in Suabia.

d. Varieties of the Distinct Concretions.

- 1241 *Compact Limestone*, consisting of *round and coarse granular distinct concretions*, which are connected by an argillaceous cement; from Bernburg, as are the three following specimens.
- 1242 *Compact Limestone* of similar, *small granular distinct concretions*.
- 1243 A piece of compact Limestone, of *very small granular distinct concretions*.
- 1244 The same, slightly Iron shot, of similar *fine granular distinct concretions*.

Rem. The last four specimens are also called Roestones.

B. Granular Limestone.

a. Varieties of the Colour.

- 1245 *Pure white, fine granular*, Limestone; from Carrara.
- 1246 The same, in the slightest degree inclining to *grey*; from Krotendorf, in Saxony.
- 1247 *Greenish white* Granular Limestone; from the same place.
- 1248 *Reddish white*, mixed with a little *grey*, Granular Limestone, with yellow Blende intermixed; from Scharfenberg, near Meissen.
- 1249 *Reddish brown* granular Limestone, with adhering Argillite; from Upper Lusatia.
- 1250 *Greenish grey* Granular Limestone; from Saxony.
- 1251 Very pale *smoke grey*, inclining to *greyish white*, Granular Limestone; from the same place.
- 1252 *Greyish black* Granular Limestone; from Gothland.

b. Varieties

b. Varieties of the Fracture.

- 1253 Granular Limestone, of a *perfectly foliated* fracture.
 1254 A piece of granular Limestone, in whose *foliated* fracture numerous large *splinters* present themselves; from Norway.

c. Varieties of the Distinct Concretions.

- 1255 A piece of Limestone, of *small*, and indeed *angularly granular*, distinct concretions; from Saxony.
 1256 Greyish Limestone, of similar, *fine granular* distinct concretions; from Carinthia.
 1257 Pure white Limestone, of very *fine granular* distinct concretions; from Carrara.
 1258 Pure white Limestone, of exceeding *fine granular*, scarcely discernible, distinct concretions; from Herold, near Ehrenfriedersdorf.

C. Calcareous Spar.

*a. Varieties of the Colour.**a. a. White.*

- 1259 *Pure white* Calcareous Spar, on brown Blende; from Lautenthal, in the Hartz.
 1260 Very pale *yellowish white* Calcareous Spar; from Wiesenburg, in the Erzgebirge.
 1261 Rather dark *yellowish white* Calcareous Spar; from the same place.
 1262 *Greyish white* Calcareous Spar, on Sparry Iron Ore, which is connected with Iron shot Gneiss mixed with Martial Pyrites; from the Himmelsfürst, at Freiberg.
 1263 *Very pale greenish white* Calcareous Spar, strewed with Crystals of Martial Pyrites; from Schneeberg.
 1264 *A little darker greyish white* crystallized Calcareous Spar, on Fluor Spar; from Gerdsdorf.
 1265 *Dark greyish white* Calcareous Spar; from Freiberg.

Rem. It passes into Siderocalcite.

b. b. Grey.

b. b. Grey.

- 1266 *Pale smoke grey* Calcareous Spar, on white ditto, which in some places is variegated with Metallic colours, and is seated on sparry Iron Ore; from Schneeberg.
- 1267 *Dark smoke grey* Calcareous Spar; from Freiberg.

a. a. Green.

- 1268 *Bright olive green*, passing into *wax yellow*, Calcareous Spar, on Micaceous Argillite which is mixed with granular Limestone; from Upper Lusatia.

d. d. Yellow.

- 1269 *Light wine yellow* Calcareous Spar; from Carinthia.
- 1270 *Bright wine yellow* Calcareous Spar; from Derbyshire.
- 1271 *Dark wine yellow* Calcareous Spar; from Idria.
- 1272 *Full wine yellow* inclining to *red*, Calcareous Spar; from the East Indies.
- 1273 *Honey yellow*, inclining a little to *brownish*, Calcareous Spar; from Zellerfeld.

c. c. Red.

- 1274 *Light Carnation*, almost *brick red*, ditto, in a flaty Rock Stone; from Adelfors, in Sweden.

Rem. It is there considered as Zeolite.

- 1275 *Brownish red* Calcareous Spar, with adhering decayed Argillite; from Schneeberg.
- 1276 *Rose red* Calcareous Spar; from Andreasberg, in the Hartz.
- 1277 *Reddish white* Calcareous Spar, mixed with granular Limestone; from Upper Lusatia.

*b. Varieties of the External Shape.**a. a. The Common External Shape.*

- 1278 *Massive* Calcareous Spar, traversing Rubblestone in several broad slips; from the Hartz.

U

1279 *Coarsely*

- 1279 *Coarsely disseminated* Calcareous Spar, in granular Lime Stone; from Wedhyget, in Schonen.
- 1280 *Finely disseminated* Calcareous Spar, in a mixture of granular Lime Stone, a large quantity of Galena and some auriferous Copper Pyrites, with adhering specular Gypsum; from the Leogang, in Saltburg.

Rem. This mixture is very remarkable and occurs extremely seldom.

b. b. The Particular External Shape.

- 1281 *Large cellular* Calcareous Spar, containing the same crystallized, mixed with much brown Blende, some Galena and decayed Argillite, and strewed over with very numerous Crystals of Martial Pyrites; from Hungary.
- 1282 *Quite flat and narrow cellular* Calcareous Spar, or by others called "*notched*"; from the Hartz.
- 1283 *Botryoidal, almost arborescent*, Calcareous Spar; from Bohemia.

Rem. It is coated by Calcareous Sinter.

c. c. The Regular External Figure.

a. Single Hexahedral Pyramids.

a. a. Easily distinguishable.

- 1284 Calcareous Spar, crystallized in single hexahedral Pyramids, of a middling size, with, as it appears, small acuminating, or rather oblique truncating planes, on Massive ditto which is mixed with Martial Pyrites and decayed Argillite; from Schneeberg.
- 1285 Calcareous Spar, in perfect, very acute, small hexahedral Pyramids, on Massive ditto which is mixed with a little Galena; from the Hartz.
- 1286 A small Calcareous Spar groupe, of similar, but somewhat smaller, hexahedral Pyramids; from the same place.
- 1287 Calcareous Spar crystallized, in similar hexahedral Pyramids, in which the proportion of the breadth to the height, has a much smaller difference than in the foregoing, on Massive ditto which is mixed with decayed Argillite; from the same place.

Rem. Here and there also, some double hexahedral Pyramids of Calcareous Spar, lay on the surface.

1288 Calcareous

- 1288 Calcareous Spar, crystallized in similar but very small, globularly accumulated Pyramids, with smooth surfaces on Siderocalcite, with adhering Iron Shot Argillite; from Mansfield.
- 1289 Calcareous Spar, in perfectly similar, but throughout delicately drusy Pyramids, which are of an equal size with the foregoing, with much crystallized Martial Pyrites and Quartz, on Massive Calcareous Spar; from Schneeberg.
- 1290 Calcareous Spar, crystallized in more acute Pyramids, with very drusy surfaces, all accumulated in one direction; from the same place.
- 1291 Calcareous Spar, crystallized in hexahedral Pyramids, acuminate a second time and more obtusely, by three planes which are set on the lateral planes, and appear in some places, as if curved outwards, on Baroselenite; from Freiberg.
- 1292 Calcareous Spar, in a little broader, and unequally longer, Pyramids of the same kind, on Iron Shot Quartz which is mixed with some Martial Pyrites and Galena; from the same place.
- 1293 Calcareous Spar, crystallized in still broader, almost prismatic, hexahedral Pyramids, acuminate at both extremities by three planes, in brown Sparry Iron Ore, which is mixed with an extraordinary quantity of Iron Ochre; from Saalfeld.
- 1294 Calcareous Spar in similar Pyramids, but with this variation, that the inequality of the lateral planes is still more considerable, in the same mineral; from the same place.
- 1295 A groupe of smaller, similar Pyramidal Crystals of Calcareous Spar, with well defined drusy lateral planes, in the same ferruginous mixture; from the same place.
- 1296 Calcareous Spar, crystallized in about half as large, in other respects perfectly similar Pyramids, but with smooth lateral planes, mixed with the same Fossil;
- 1297 Calcareous Spar, crystallized in the same manner, but scopiformly aggregated, in a mixture of compact Lime Stone, and an extraordinary quantity of Siderocalcite, which is coated with Mountain Green, and red micaceous Iron Ore; from the same place.

- 1298 Calcareous Spar, crystallized in similar Pyramids, aggregated partly scopiformly, partly stellularly, on the same mixture of No. 1293; from the same place.
- 1299 Calcareous Spar, in similar Pyramids, which in some places penetrate each other at right angles, on Sparry Iron Ore which is mixed with a large quantity of Iron Ochre and a little Baroselenite; from the same place.
- 1300 Calcareous Spar, in very slender, very small, similar Pyramids, with which another crystallization of Calcareous Spar, and Mountain Green is intermixed, on Iron Shot Massive Calcareous Spar, to which Argillite adheres; from the same place.

B. B.] On Account of the Size and Connexion, difficultly distinguishable.

- 1301 Calcareous Spar, in still smaller, indistinct Pyramids; on cellular Quartz, which is strewed with Crystals of Martial Pyrites; from the Hodriz, near Schemnitz.
- 1302 Calcareous Spar, in perfectly capillary, similar Pyramids, which are columnarly aggregated; from the same place.
- 1303 Calcareous Spar, crystallized in similar, capillary Pyramids, fascicularly aggregated, strewed with Crystals of Martial Pyrites, on Massive Calcareous Spar, which is mixed with a large quantity of black Blende and Quartz, as also some Galena and Martial Pyrite; from the Hartz.
- 1304 Calcareous Spar, in similar, capillary Pyramids aggregated stellularly, in Quartz; from Hungary.
- 1305 Pyramidal Calcareous Spar, of the same variety, aggregated in small, slightly diverging, bundles, on a Quartz Groupe, with adhering rose red Calcareous Spar and decayed Gneiss; from Freiberg.
- 1306 A Groupe of similar, capillary, but somewhat more divergingly aggregated, Calcareous Spar Crystals, with crystallized Quartz, on Massive Calcareous Spar; from the same place.
- 1307 Calcareous Spar, crystallized in very divergingly aggregated, but still capillary, Pyramids, with Sparry Iron Ore, on a Quartz Groupe, between which Massive Calcareous Spar interposes; from the same place.

γ. γ. By Aggregation passing into other Crystallizations.

- 1308 Calcareous Spar, crystallized in exceeding small, similar Pyramids, forming indistinct, double hexhædral Pyramidal aggregations, with Fluor Spar, on a Baroselenite groupe and decayed Argillite; from Gerisdorf.
- 1309 Calcareous Spar, in more distinct, double hexhædral pyramidally aggregated Pyramids, on a Fluor Spar groupe, which is sprinkled with Martial Pyrites in very small Crystals; from Gerisdorf.
- 1310 Calcareous Spar, in still more distinct, similarly aggregated Pyramids, on a sparry Iron Ore groupe, which overlays Massive Calcareous Spar, intersected by a slip of Galena; from the Hartz.
- 1311 Similarly crystallized Calcareous Spar, but so that the smallest hexhædral Pyramids are very distinct, on a Fluor Spar groupe, to which Quartz adheres; from Freudenstein, near Freiberg.

Rem. This is the transition from the false double hexhædral Pyramid, to the true, in the foregoing varieties it was doubled accidentally, in this one essentially.

*β. Double Hexhædral Pyramids.**α α. Perfect.*

- 1312 Calcareous Spar crystallized in somewhat lengthened, mostly maced, small double Hexhædral Pyramids, mixed with much Martial Pyrites, some grey Copper Ore, and brown Blende, and also Quartz, with adhering Argillite on both sides; from the Leogang, in Saltzburg.
- 1313 Calcareous Spar, in perfect double Hexhædral Pyramids, the faces of the one alternating with those of the other, on the same massive, in compact Lime Stone; from Derbyshire.
- 1314 Calcareous Spar, in similar short Pyramids, aggregated in rows, almost scalarways; from the Hartz.

β. β. With Truncations.

- 1316 Calcareous Spar, crystallized in the foregoing manner,

ner, but one Pyramid notably larger than the other, and the edges of their common base truncated; from England.

1317 Calcareous Spar, in double Hexhædral Pyramids of middling size, with the angles of their common base truncated, in Quartz, containing much brown Blende; from the same place.

1318 Calcareous Spar, crystallized in similar detached Pyramids, but the edges much rounded, which are united rectangularly in pairs; from the same place.

1319 Calcareous Spar, in similar Hexhædral Pyramids, hollow, on Quartz; from Hungary.

1320 Calcareous Spar, crystallized in the foregoing manner, but furnished at the extremities with an obtuse Trihædral acumination, whose planes rest on the lateral planes of the Pyramids, and the angles of the acuminating planes are truncated; also the faces of the one Pyramid are seated on the lateral edges of the other, on Massive ditto, wherein some Galena and Blende is disseminated.

γ. *Hexhadral Prisms.*

α. α. *Acuminated by six Planes.*

1321 Calcareous Spar, in long Hexhædral Prisms, very acutely terminated by six planes, and the Apex deeply truncated, on Siderocalcite which is mixed with drusy Quartz; from the Hartz.

1322 Calcareous Spar, crystallized in Hexhædral Prisms of a middling size, acuminated by six planes which are set on the lateral edges, and the Apex, not at all, or very slightly indeed, perhaps only accidentally truncated, on Siderocalcite; from the same place.

β. β. *Accuminated by three Planes.*

κ. *Proportion of the Parts.*

1323 Calcareous Spar, crystallized in Hexhædral Prisms
of

of middling size, very acutely terminated by three planes set on the alternate lateral planes, the Prisms are tolerably parallel, and coalesce by their lateral planes, on Siderocalcite with inlaying Argillite; from the Hartz.

- 1324 Calcareous Spar, in Hexhædral Prisms, obtusely terminated at the extremities by three planes set on the alternate lateral planes, partly of middling size, partly small, on Iron Shot Quartz; from Schneeberg.
- 1325 Calcareous Spar, in very short similar Prisms, with proportionably very large acuminate planes, in Massive ditto, on Quartz with adhering Argillite; from Gerstorf.
- 1326 Calcareous Spar, crystallized in short similar Prisms, with convex acuminate planes, on a Fluor Spar groupe; from the same place.
- 1327 Calcareous Spar, in somewhat longer Hexhædral Prisms, with acuminate planes curved outwards, on Quartz, which is mixed with Martial Pyrites; from Freiberg.
- 1328 Calcareous Spar, in Hexhædral Prisms, with similar, but flat, acuminate planes, but in such a manner that the exponent of the proportion of the acuminations to the Prism, is almost equal to 1. on Massive Calcareous Spar, which is mixed with some Quartz and Argillite; from Schneeberg.
- 1329 Similarly crystallized ditto; but so that the proportion of the acuminations, to the Prism, is not near so considerable; from the same place.
- 1330 Calcareous Spar, in tolerably slender Hexhædral Prisms, which are partly piled upon, and partly irregularly implicated in, one another, upon black Blende, and with adhering decomposed Gneiss; from Freiberg.
- 1331 Calcareous Spar, in the same manner, but acicularly crystallized on Baroselenite; from Gerstorf

2. *Aggregation of these Prisms,*

- 1332 Calcareous Spar, crystallized in similar Prisms, but coalescing by their lateral planes in pairs, on Massive ditto; with adhering Siderocalcite, intersected by two slips of brown Blende, and to which Gneiss adheres; from Braunsdorf.

1333 Calcareous

- 1333 Calcareous Spar, in similar Prisms of middling size, which intersect each other at right angles, and are implanted conjointly in an Amethyst groupe which lines the cavity of a Calcedony Spheroid; from Oberstein, in the Palatinate.
- 1334 Calcareous Spar, in similar, but very low Prisms, which in some places, though not quite regularly, are piled upon one another in rows, upon Massive Calcareous Spar; from Schneeberg.
- 1335 Similarly crystallized Calcareous Spar, aggregated exactly in rows, with Crystals of Siderocalcite on a Quartz groupe and adhering Massive Quartz; from Freiberg.
- 1336 A groupe of similar Calcareous Spar Crystals, scopiformly aggregated, between two converging walls of Quartz; from Gersdorf.
- 1337 Calcareous Spar, in similar but much more delicate Crystals, forming Olive shaped accumulations, with Copper Pyrites, much Galena and Sparry Iron Ore; also mixed with Quartz and Argillite; from Bleiberg, in Carinthia.
- 1338 Calcareous Spar, in very small Crystals, aggregated into a Pyramid of middling size, with a small Prismatic Crystal which forms a knob on the apex of the large Pyramid, and strewed all over, with small Crystals of Martial Pyrites; from Schneeberg.
- 1339 Prismatic crystallized Calcareous Spar, aggregated in somewhat smaller, but not so regular, Pyramids, with brown Blende, on Quartz and adhering Gneiss; from Braunsdorf, near Freiberg.
- 1340 A large groupe of similar Prismatic Calcareous Spar, aggregated in rather slenderer and lower Pyramids, on Quartz, wherein Blende and Arsenical Pyrites are disseminated; from the same place.
- 1341 Prismatic Calcareous Spar, aggregated in slender Columnar Particles, on Quartz; from the same place.
- 1342 Hexhædral Prismatic Calcareous Spar, aggregated into a large and thick Prism, upon Argillite; from the same place.

Rem. There the aggregation agrees perfectly with the figure.

- 1343 Similarly crystallized, globularly accumulated Calcareous

aceous Spar, with Sparry Iron Ore, on a Quartz Groupe, to which Massive Quartz, with much Martial Pyrites and some brown Blende, adheres; from Hungary.

5. *Size of these Prisms.*

- 1344 Ditto, in similar large Prisms bordering however on the middle size, upon an Amethyst Groupe, in a Calcedony Spheroid; from the Palatinate.
- 1345 Calcareous Spar, crystallized in similar Prisms of middling size, on a mixture of Massive ditto, with some Galena, much Martial, and also some Copper, Pyrites; from Saxony.
- 1346 A groupe of similarly crystallized Calcareous Spar, in which the size of the separate Crystals is intermediate between the middling and small, on Massive ditto, underneath which a Siderocalcite groupe occurs; from Schneeberg.
- 1347 A groupe of small similar Calcareous Spar Crystals, in Argillite, which is thoroughly impregnated with Calcareous Particles; from Braunsdorf.
- 1348 Calcareous Spar, crystallized in very small similar Prisms, with Crystals of Martial Pyrites of the same size, on Siderocalcite intermixed with Galena; from the Hartz.

7. *Modifications of these, by truncation of the Angles.*

- 1349 Similarly crystallized Calcareous Spar, but the angles of the acuminate planes are truncated, on Quartz, which is mixed with Siderocalcite; from the same place.
- 1350 Ditto, crystallized in the same manner, but the apex of the acuminate planes only is truncated, of middling size, in a closely accumulated groupe of Siderocalcite; from Freiberg.
- 1351 Similarly crystallized ditto, but with the apex deeply truncated, with Massive ditto, on Siderocalcite; from the same place.
- 1352 Calcareous Spar, crystallized in small Hexahedral Prisms

Prisms, with convex extreme planes, and truncated extreme edges, on Massive ditto; from Schneeberg.

Rem. In the midst of each Prism is found a small knob of Martial Pyrites, hence this kind of groupe is called (*Zweihendruste.*)

1. 1. *Perfect Hexahedral Prisms.*

8. *Varieties of the Lateral Planes.*

- 1353 Crystallized Calcareous Spar, in tolerably perfectly equilateral Hexahedral Prisms of middling size, on a mixture of Massive ditto, with some Galena, and here and there strewed over with Zeolite Crystals; from Andreasberg, in the Hartz.
- 1354 Crystallized Calcareous Spar, in similar Hexahedral Prisms, but the alternate lateral planes equal, the Crystals large, with very numerous Zeolite Crystals in drusy accumulations, on Siderocalcite, with adhering Quartz, whereon is some superficial Galena and Copper Pyrites; from the Hartz.
- 1355 Crystallized Calcareous Spar, in similar Hexahedral Prisms, but with two opposite faces larger than the other four, on Massive ditto, which is mixed with Quartz; from Schneeberg.

3. *Connexion of the Crystals.*

- 1356 Calcareous Spar, crystallized in perfect Hexahedral Prisms, partly adhering to, partly penetrating one another, on Cellular Quartz, which is mixed with much Galena; from the Hartz.
- 1357 Calcareous Spar, in similar Prisms aggregated in rows, on Ironshot Siderocalcite, which is mixed with a good deal of Galena; from the same place.

2. *Relative size of the lateral planes.*

- 1358 A groupe of similar perfect Hexahedral Prismatic Calcareous Spar Crystals, in which the exponent of the proportion of the breadth of the Prisms to their height,

- height, is from 4 to 6, on Siderocalcite, containing a little Galena; from Andreasberg.
- 1359 Crystallized Calcareous Spar, of the same sort, but with this difference, that the before mentioned exponent is at most one and an half, on Martial Pyrites; from the Hartz.
- 1360 Calcareous Spar, just so crystallized, but the lateral and extreme planes are of equal size, in a groupe, on Siderocalcite, with adhering Argillite; from Andreasberg.
- 1361 Crystallized Calcareous Spar, in an inverted proportion, viz. the thickness of the Prism is equal to double its height and more, on a mixture of Massive ditto, with much brown Blende, and also Martial Pyrites; from Hungary.

Rem. Herein may be observed the transition into the Hexhædral table.

γ. *Absolute size of these Prisms.*

- 1362 Calcareous Spar, in large similar Hexhædral Prisms, associated with small ones, and others of middling size, together with much drusy Zeolite, on Siderocalcite; from Andreasberg.
- 1363 Calcareous Spar, in similar Prisms, scalarwise aggregated, with lateral planes which meet the extreme planes under oblique angles, and in general of middling size; from the same place.
- 1364 Calcareous Spar, crystallized in small similar Hexhædral Prisms; from the same place.

δ. *Hexhædral Tables.*

α. α. *Individual Condition.*

- 1365 Calcareous Spar, crystallized in rather thick, perfectly equilateral Hexhædral tables, on a mixture of Fluor Spar, Massive Calcareous Spar, some Martial Pyrites and a little Galena; from Freiberg.
- 1366 Calcareous Spar, tabularly crystallized in the same manner, though not perfectly, but rather alternately equilateral and connected in rows, on Cellular

Quartz mixed with some Siderocalcite; from the Hartz.

B. B. Their Connection.

- 1367 Calcareous Spar, in very small tables of this kind, pyramidally accumulated, on Massive ditto, with adhering Quartz containing Copper Pyrites and some grey Copper Ore, with a pyramidal Calcareous Spar groupe underneath; from the same place.
- 1368 Calcareous Spar, crystallized in extremely thin similar tables implanted on one another, upon Cellular Quartz, penetrated with Mountain green, and mixed with Siderocalcite; from Clausthal in the Hartz.
- 1369 Calcareous Spar, in Hexahedral cellularly coalited tables of middling size, with obliquely truncated extreme edges, upon Quartz; from Schneeberg.
- 1370 Calcareous Spar, tabularly crystallized in the same manner, but the tables rather smaller and in some places slightly curved, intersecting one another so as to form tolerably regular Tetrahedral cells, in a groupe upon Argillite, which is mixed with Quartz; from the same place.

1. Lenticular.

- 1371 Calcareous Spar, in perfect small Lenticular Crystals aggregated into Roses, on Hornstone which is mixed with much Vitreous Silver Ore; from Joachimsthal.
- 1372 Calcareous Spar, in somewhat thicker Lenses cellularly intersecting each other, upon Argillite; from Schneeberg.
- 1373 Crystallized Calcareous Spar, in still somewhat thicker small Lenses, closely connected upon a sparry Iron Ore very much mixed with Iron Ochre; from Camisdorf.
- 1474 Crystallized Calcareous Spar, of the same kind, but a little smaller, and accumulated in spheroidal grains, on the same mixture; from the same place.
- 1375 Crystallized Calcareous Spar, in hollow Lenses of middling

middling size, closely studded both in-and externally, with very small and minute Rhomboidal Calcareous Spar Crystals, forming a large groupe; from the same place.

ζ. *Double Trihedral Pyramids.*

α. α. *Without Modification.*

- 1376 Crystallized Calcareous Spar, in rather obtuse, very small Trihedral Pyramids on a Quartz groupe, over Galena, to which Argillite adheres; from the Hartz.
- 1377 Crystallized Calcareous Spar, in similar, globularly accumulated Pyramids, on a Quartz groupe, with adhering Massive ditto, wherein brown Blende, a little Galena, and Copper Pyrites is disseminated; from Schemnitz.
- 1378 Calcareous Spar, crystallized in similar Trihedral Pyramids of middling size, granularly accumulated, on Massive ditto, which is mixed with some Martial Pyrites; from Schneeberg.
- 1379 Calcareous Spar, crystallized in somewhat larger, very compressed, double Trihedral Pyramids, which have nearly a lenticular appearance, but with sharp edges, accumulated partly cellularly and partly in Roses, forming a beautiful groupe in Massive ditto, with adhering Argillite; from the same place.
- 1380 A groupe of somewhat larger, more sharp edged, smooth, double Trihedral Pyramidal Calcareous Spar Crystals upon Quartz; from the same place.
- 1381 A similar groupe, but with well defined drusy planes, in Quartz, wherein some Galena, and a little Martial Pyrites is intermixed; from Schneeberg.
- 1382 Calcareous Spar, crystallized in somewhat larger, similar Pyramids, the planes of which are all streaked diagonally, on Iron Shot Quartz, with numerous Crystals of Copper Pyrites strewed over; from England.

β. β. *With Truncations.*

- 1383 A groupe of small, double Trihedral Pyramidal Crystals

- Crystals of Calcareous Spar, with the angles of their common base slightly truncated, on Massive Quartz, with adhering Argillite; from Schneeberg.
- 1384 Calcareous Spar, in similar Pyramids, with the angles of their common base rather more deeply truncated, the truncating planes set obliquely on the lateral planes, on Massive ditto, which is mixed with very much Quartz, much Galena, some red silver Ore, and Copper Pyrites; from Freiberg.
- 1385 A groupe of perfectly similar, large granularly accumulated, Calcareous Spar Crystals with the angles more deeply truncated; from Leadhills, in Scotland.
- 1386 A groupe of small, double Trihædral Pyramidal Crystals, with the angles of their common base so deeply truncated, that the truncating planes are contiguous and form small prisms, together with hollow Hexhædral Pyramidal Crystals of Calcareous Spar, on a Quartz Groupe; from Hungary.
- 1387 Pyramidally crystallized Calcareous Spar, of the same variety but much more deeply truncated, so that from this originates the transition into the Hexhædral Prism acuminated by three planes, on Siderocalcite; from Andreasberg.

n. Rhombs.

a. a. With Convex Faces.

- 1388 Calcareous Spar, crystallized in Rhombs, with the faces very highly convex, between two walls of Tile Copper Ore, with overlaying compact Malachite; from Saalfeld.
- 1389 A groupe of similar Rhomboidal Calcareous Spar Crystals, with faces not so strongly convex, upon and in Siderocalcite; from Freiberg.

β. β. With Level Faces.

N. With regard to their size.

- 1390 Crystallized Calcareous Spar, in perfect Rhombs having level faces, with Galena appearing as if fused, on Quartz wherein much black Blende and Martial Pyrites are intermixed, likewise with adhering decayed Gneiss; from Freiberg.

1391 Crystallized

- 1391 Crystallized Calcareous Spar, in perfect Rhombs of middling size, mixed with a large quantity of Sand; from Fontainbleau, in France.
- 1392 Crystallized Calcareous Spar, in true, though small, Rhombs, on a Quartz Groupe within a Spheroid of green Earth; from Bareuth.
- 1393 Crystallized Calcareous Spar, in small, nearly very small, Rhombs, on small granular sparry Iron Ore; from Kamisdorf.
- 1394 A groupe of pure white, similar, very small Rhomboidal Crystals of Calcareous Spar, on compact brown Iron Stone which is mixed with a large quantity of Iron Ochre; from the same place.

2. *With respect to the condition of the Surfaces.*

- 1395 A groupe of similar, Rhomboidal Calcareous Spar Crystals, with smooth faces, on Quartz which is mixed with much Martial, and some Arsenical, Pyrites; from Freiberg.
- 1396 Wine yellow Calcareous Spar, similarly crystallized, with drusy lateral planes; from Saalfeld.

γ. γ. *With Truncations.*

- 1397 Crystallized Calcareous Spar, in partly small, partly very small Rhombs, the two opposite obtuse lateral edges truncated, on Quartz; from Schneeberg.

δ. *The Cube.*

- 1398 Crystallized Calcareous Spar, in perfect cubes which are only here and there slightly Rhomboidal, with minutely crystallized Martial Pyrites, on Siderocalcite; from Camisdorf.
- 1399 Calcareous Spar crystallized, in somewhat smaller cubes, on a mixture of Iron Ochre, sparry, and compact brown, Iron Ores; from Grosskamisdorf.

1. *Rem.* These cubes have in some places lost more or less of their water of crystallization.

2. This is the rarest crystallization of Calcareous Spar, provided it be real, but many are said to be cubes which are not so in fact.

1400 Calcareous

- 1400 Calcareous Spar crystallized in very small, peach bloom red, perfect cubes, on a decayed Rock Stone which seems to be grey Wakke.
- 1401 Calcareous Spar crystallized, in minute, almost botryoidally accumulated, cubes, on sparry Iron Ore which is mixed with Iron Ochre; from Camisdorf.
- 1402 Calcareous Spar crystallized, in similar, minute spheroidally reniformly accumulated cubes, on massive, extremely fine Granular ditto, which is seated on Quartz, wherein yellow Blende, and Copper Pyrites are disseminated, with adhering decayed Gneiss; from Scharfenberg.

.. *Single Trihedral Pyramids.*

a. a. *Without Modification.*

- 1403 Crystallized Calcareous Spar, in very small, single, very obtuse, reniformly accumulated, Trihedral Pyramids, on Quartz which is mixed as the foregoing; from the same place.
- 1404 Crystallized Calcareous Spar, in somewhat more acute, small, Trihedral Pyramids, aggregated into a groupe, on Massive ditto, with adhering, very fine granular Lime Stone; from Upper Lusatia.
- 1405 Crystallized Calcareous Spar, in much more acute, Trihedral Pyramids of middling size, with rough surfaces, on Massive ditto; from Steiermark.
- 1406 Crystallized Calcareous Spar, in still more acute, similar, small Pyramids, on a mixture consisting of much striated Martial Pyrites and some Quartz; from Freiberg.
- 1407 Similarly crystallized Calcareous Spar, coarse-granularly accumulated, the Pyramids adhere to one another by their bases, on Quartz which is mixed with much striated Martial Pyrites; from the same place.
- 1408 A groupe of very acute, similar, small, perfectly transparent Calcareous Spar crystals, on Massive ditto, which is intersected by a slip of sparry Iron Ore; from Iberg, in the Hartz.

β. β. *With Truncations.*

- 1409 Similarly crystallized Calcareous Spar, but smaller, and

and having the angles of their bases slightly truncated, in sparry Iron Ore, which is mixed with much Iron Ochre; from the same place.

- 1410 Similarly crystallized Calcareous Spar, but nearly very small, and with the angles of the base rather more deeply truncated, in a groupe, upon Quartz.

γ. γ. Acuminated.

- 1411 Similarly crystallized Calcareous Spar, in tolerably acute, small Pyramids, acuminated a second time and more obtusely, by three planes which are set on the lateral planes, on Argillite; from Schneeberg.
- 1412 Pyramidal crystallized Calcareous Spar of the same variety, only rather larger, with an extremely drusy, and very obtuse, acumination; from Derbyshire.

δ. δ. Deformities of these Pyramids.

- 1413 Calcareous Spar crystallized in the same manner, but with all the apices broken off, and a little excavated, on Massive ditto; from Derbyshire.
- 1414 Similarly crystallized Calcareous Spar, but with the apices very deeply excavated; from the same place.

Rem. The whole has a Trihedral prismatic appearance.

ε. Double Trihedral Pyramids.

- 1415 Calcareous Spar crystallized in considerably elongated, hollow, double Trihedral Pyramids, on Martial Pyrites; from the Isaac, near Freiberg.
- 1416 Calcareous Spar crystallized, in thicker, very drusy, similar, hollow Pyramids, on Massive ditto which is mixed with much Quartz and some Martial Pyrites; from Hungary.

ζ. Varieties of the Fracture.

- 1417 Perfectly plain foliated Calcareous Spar, intersected by a slip of blackish green Mica; from Siberia.
- 1418 Curved foliated Calcareous Spar, with adhering Argillite; from Schneeberg.

Y

δ. Varieties

d. Varieties of the Fragments.

- 1419 Two *Rhomboidal*, equilateral fragments of Calcareous Spar; from the Iron Mines, in Carinthia.
 1420 Another *Rhomboidal* fragment of Calcareous Spar, whose breadth equals double the length; from the same place.

*e. Varieties of the Distinct Concretions.**a. Granular.*

- 1421 *Large* Granular, somewhat Iron Shot, Calcareous Spar; from Upper Lusatia.
 1422 Calcareous Spar, of partly *large*, partly *coarse*, Granular, distinct concretions; from the same place.
 1423 Massive Calcareous Spar, of partly *coarse*, partly *small*, Granular distinct concretions, overlaid by crystallized ditto, and with an adhering Calcareous Spar Groupe underneath; from the Hartz.
 1424 Massive Calcareous Spar of partly *small*, partly *very small*, Granular distinct concretions, on Quartz which is mixed with martial Pyrites; from Schneeberg.
 1425 A fragment of Calcareous Spar, of *fine* granular distinct concretions, with finely disseminated Martial Pyrites and Galena, and also Argillite adhering to both sides; from Braunsdorf.

β. Columnar.

- 1426 A piece of Calcareous Spar of *thick* and *straight*, Columnar distinct concretions, with adhering Sparry Iron Ore; from Iberg, in the Hartz.
 1427 Somewhat more *slender* Columnar Calcareous Spar; from the Papal Territories.
 1428 *Slender* Columnar, in some places cuneiformly diverging, Calcareous Spar, with a nucleus of Sparry Iron Ore; from England.

Rem. A Transition into the following Variety.

- 1429 Calcareous Spar, of perfectly *cuneiform* Columnar distinct Concretions; from the same place.

f. Varieties

f. Varieties of the Transparency.

- 1430 A large Rhomboidal, *quite transparent*, at the same time *duplicating*, Calcareous Spar fragment; from Iceland, (called Iceland Crystall.)
- 1431 *Semi transparent* Calcareous Spar, mixed internally with a large quantity of Capillary Pyrites; from Schneeberg.
- 1432 In a high degree *translucid*, almost semitransparent, Calcareous Spar; from Carinthia.
- 1433 *Weakly translucid* Calcareous Spar; from Löbegin in the Saalkreis.

*C. Striated Limestone.**a. Varieties of the Colour.*

- 1434 *Greyish white* striated Limestone, on Calcareous Spar, in which Quartz, some Martial Pyrites, and Galena are disseminated; from Scharfenberg,
- 1435 *Yellowish white* ditto; from Poland.
- Rem.* It has at the same time large and oblong Granular distinct Concretions.
- 1436 Striated Limestone, which is intermediate between *Honey and Wine yellow*, on other ditto which forms an overcast on an Argillaceous Marle; from the same place.
- 1437 *Reddish brown* striated Limestone; from Saxony.

b. Varieties of the Fracture.

- 1438 Striated Limestone with a tolerably *broad* striated fracture; from Poland.
- 1439 *Narrow but parallel* striated, passing into the *fibrous*, ditto; from Bohemia.
- 1440 *Very narrow and stellularly diverging* striated Limestone, which here and there discovers some *splinters*, and exhibits globular, large grained, distinct Concretions

Concretions; is found also in fine Granular Limestone; from the same place.

Rem. The Granular Limestone serves here for a cement in which the distinct concretions of the striated Limestone lay, just as in the Roestone, an Argillaceous cement holds together the distinct concretions of compact Limestone.

D. *Calcareous Sinter.*

a. *Varieties of the Colour.*

- 1441 Perfectly pure white Calcareous Sinter; from Eisenerz in Steiermark.
- 1442 Rather dark yellowish white, ditto; from Württemberg.
- 1443 Sky blue ditto; from Annaberg.
- 1444 A piece of Calcareous Sinter, of an intermediate colour between dark Pearl grey and brownish red; from Bohemia.
- 1445 Yellowish brown ditto; same place.
- 1446 White ditto, spotted with brownish red; from the same place.
- 1447 Milk white ditto, striped with both yellow and brown; from the same place.
- 1448 Calcareous Sinter, inclining from Wine yellow into Isabella yellow, with a multiplicity of white stripes; from Töpliz in Bohemia.
- 1449 Reddish and yellowish brown, and yellowish grey, beautifully zoned ditto, streaked at the sides with rose red; from Carlsbad in Bohemia.
- 1450 Pure white ditto, veined and spotted with yellowish grey and brown; from Württemberg.
- 1451 Bluish grey and pale Carnation red, veined and spotted ditto; from Bohemia.

b. *Varieties of the External Shape.*

a. a. *Common External Shape.*

- 1452 An Amorphous boulder of Calcareous Sinter; from Hungary.

1453 A

- 1453 A very prominently *globular* boulder of Calcareous Sinter; from the same place.
 1454 Calcareous Sinter, in *elliptical* masses; from Tivoli in the Papal Territory.

b. b. The Particular External form.

- 1455 *Tubuliform* Calcareous Sinter, perforated through the center; from Jena.
 1456 *Tubuliform*, almost *Pipe shaped* *Tubuliform*, ditto; from Freiberg.
 1457 Perfectly *Pipe shaped* *Tubuliform* Calcareous Sinter; from Tyrol.
 1458 *Stalactitic*, in some places *Arbustiform*, Calcareous Sinter, with an adhering decomposed Rockstone; from Schemnitz.
 1459 Solitary, still somewhat *stalactitic*, *Coralliform* branches of Calcareous Sinter; from Eisenerz.
 1460 Perfectly *Coralliform* Calcareous Sinter, on Massive ditto; from the same place.
 1461 Calcareous Sinter, which is intermediate between *Coralliform* and *Arbustiform*, mixed underneath with some Sparry Iron Ore; from Huttenberg in Carinthia.
 1462 Imperfectly *Arbustiform* Calcareous Sinter, on disintegrated Gneiss; from Annaberg.
 1463 *Reniform* Calcareous Sinter, in some places also a little *Coralliform*, on a decayed Rockstone which seems to have been Gneiss; from the same place.
 1464 Very small *Reniform* Cupriferous Calcareous Sinter, on Argillite which is mixed with some Galena and much Copper Pyrites; from the Leogang in Salzburg.
 1465 Extremely small *Reniform* ditto; from Hungary.
 1466 Small *Globular* ditto; from the same place.
 1467 Calcareous Sinter, whose *Globules* are very imperfect, and are accumulated here and there Botryoidally, and also *Arbustiformly*; from the same place.
 1468 Calcareous Sinter, which is intermediate between *Bulbous* and *Reniform*; from the Erzgebirge.
 1469 Calcareous Sinter, forming a thick *Bulbous* overcast, on Argillite; from Salzburg.

1470 *Oblong*

- 1470 *Oblong Bulbous*, peculiarly shaped, Calcareous Sinter; from the same place.
- 1471 *Oblong* and very deep *Cellular* ditto, the Cells formed by somewhat curved Reniform partitions, on decomposed Argillite; from Hungary.
- 1472 *Round Cellular*, though in some places still *oblong*, Calcareous Sinter, wherein some small pieces of wood present themselves, which have contributed to the formation of the cells; from Siberia.
- 1473 Calcareous Sinter, with *Hexadral Pyramidal impressions*, on fine Granular Limestone; from Austria.
- 1474 *Flat* and *undulating Cellular* Calcareous Sinter, on Granular Limestone; from the same place.
- 1475 Calcareous Sinter, forming a very thin *coating* on Moss; from Thuringia.
- 1476 A thicker *Incrustation* of ditto; from the same place.
- 1477 A *very thick* Incrustation of Calcareous Sinter on wood, of which but a small part is visible; from the same place.

c. *Varieties of the Fracture.*

- 1478 *Stellularly diverging fibrous* Calcareous Sinter; from Huttenberg in Carinthia.
- 1479 *Parallel*, or extremely slightly *diverging fibrous* ditto; from the Erzgebirge.

d. *Varieties of the Distinct Concretions.*

- 1480 Calcareous Sinter of very *thick* and tolerably *straight*, lamellar distinct concretions; from Bohemia.
- 1481 *Thick* lamellar Calcareous Sinter; from Carlsbad.
- 1482 Calcareous Sinter, of *thin* and *straight* lamellar distinct concretions, with a little disseminated Blende; from Hungary.
- 1483 Calcareous Sinter, of *festooned*, *thick* lamellar distinct concretions; from Carlsbad.
- 1484 Similarly *curved* but tolerably *thin* lamellar Calcareous Sinter.

1485 Yellow

- 1485 Yellow Calcareous Sinter, of very *thin* and *concentrically curved* Lamellar distinct concretions; from the Veronese,

E. *Oviform Limestone.*

Kirwan. 7th Family of Limestones.

a. *Varieties of the Colour.*

- 1486 *Greyish white* Oviform Limestone, with adhering yellowish grey Calcareous Sinter.
 1487 *Yellowish white* ditto.
 1488 *Yellowish brown*, ditto.

b. *Varieties of the External Shape.*

- 1489 *Massive* Oviform Limestone, with adhering Calcareous Sinter.

d. *Varieties of the distinct Concretions.*

- 1490 Oviform Limestone of *large granular* distinct concretions; from Hungary.
 1491 *Coarse Granular* Oviform Limestone, inlaying in fine Granular ditto.
 1492 Solitary detached *coarse Granular* distinct concretions of oviform Limestone; from Hungary.
 1493 Somewhat smaller, *coarse Granular* distinct concretions of ditto, which are at the same time tolerably *thick* Lamellar.
 1494 Solitary, detached, *small Granular*, similar, distinct concretions of ditto; from Hungary.
 1495 *Very small* granular distinct concretions of ditto.
 1496 *Very small* and *indistinctly* Granular ditto, with traces of Coal and Bituminous Wood which had formerly been inlaid; from Pörscheesberg in Silesia.
 1497 *Very distinct*, very *small* Granular ditto, with small and coarse Granular ditto adhering here and there.
 1498 Somewhat Iron shot oviform Limestone of *fine* and *round* Granular distinct concretions.

Rem. All the Specimens to which a place is not assigned, are from Carlsbad.

4. ARGENTINE.

Kirwan, 6th Spec. Calcar. Gen.

- 1499 Massive Argentine of large and coarse granular distinct concretions, mixed with much Galena; from Barmansgrün near Schwarzenberg.
- 1500 Massive, and also coarsely disseminated Argentine of small granular distinct concretions, mixed with much brown Blende and Galena, as also decomposed Argillite; from the same place.

5. SIDEROCALCITE.

Kirwan, 7th Spec. Calcar. Gen.

a. Varieties of the Colour.

- 1501 *Reddish white* Siderocalcite, with crystallized Quartz and Blende, as also some Calcareous Spar, on massive Quartz, from Freiberg.
- 1502 *Greyish white*, inclining to *smoke grey*, Siderocalcite, mixed with pure white Calcareous Spar and overlaid by a group of Calcareous Spar, from the Hartz.
- 1503 *Pale yellowish grey* Siderocalcite, with Calcareous Spar, on Galena, to which Argillite adheres, from Schneeberg.
- 1504 *Pale Isabella yellow* Siderocalcite. from Freiberg.
- 1505 *Dark Isabella yellow* Siderocalcite, with adhering reddish white Siderocalcite on brown Blende; from the Hartz.
- 1506 Tarnished Siderocalcite with *variegated* metallic colours; from Freiberg.

b. Varieties of the external Shape.

- 1507 Siderocalcite crystallized in small, perfect lenses, strewed over with crystals of Martial Pyrites and accompanied by decomposed Gneiss; from Freiberg.
- 1508 Crystallized ditto, in Rhombs with convex planes, with numerous

numerous Calcareous Spar crystals upon Galena; from the same place.

- 1509 Siderocalcite in perfect Rhombs, which are partly small, and partly very small, on Quartz; from the same place.
- 1510 Siderocalcite in similar Rhombs aggregated in rows, on massive ditto mixed with much Iron Ochre; from Camisdorf.
- 1511 Siderocalcite in hollow, acute hexahedral Pyramids; forming a groupe upon a piece of Sparry Iron Ore which is thickly coated by it.

c. Varieties of the Fracture.

- 1512 A piece of Siderocalcite with a *spherically curved foliated* fracture, an overlaying Calcareous Spar groupe, and arbusiform black manganesian ore, on Sparry Iron Stone; from Camisdorf.
- 1513 A piece of Siderocalcite, whose *curved foliated* fracture approaches nearly to the *straight foliated*, with a Calcareous Spar groupe overlaid, and an intermixture of Galena; from the Hartz.

1. *Rem.* The fracture of the specimen, No. 1512, appears to be the proper one of this fossil, besides also large and coarse granular distinct concretions may be observed in both the last.

2. *Rem.* The line of demarkation between this and sparry Iron Ore is not yet quite sufficiently determined, therefore it is doubtful whether the Numbers 1503, 1504 and 1505, as also from 1508 to 1510, really belong to this place.

6. SWINE STONE.

Kirwan, 336 Family, 2d Spec. Calc. Gen.

- 1514 Yellowish grey Swine Stone with adhering Calcareous Spar; from Ilmenau.
- 1515 Greyish black Swine Stone; from Bottendorf, in Thuringia.

Rem. Its fracture is intermediate between splintery and earthy.

Z

1516 A piece

- 1516 A piece of Swine Stone, with a very stony fracture.
 1517 Greyish black splintery Swine Stone, in some places having a foliated appearance, with traversing slips of Calcareous Spar.

Rem. These folia indubitably originate from the admixture of particles of Calcareous Spar.

7. LIVER STONE.

Kirwan. 3d Spec. Baryt. Gen.

- 1518 Greyish black, large grained Liver Stone; from Ilmenau.
 1519 Fine grained, greyish white, partly pale smoke grey, Liver Stone; from the vicinity of Prague.

8. MARLE.

Kirwan. 5th Spec. Calc. Gen.

A. Earthy Marle.

- 1520 Yellowish grey, passing into Isabella yellow, earthy Marle; from Spicher, near Eisenach.

B. Indurated Marle.

a. Varieties of the Colour.

- 1521 Yellowish white, passing into Isabella Yellow, indurated Marle; from the vicinity of Dresden.
 1522 Yellowish grey Marle; from Upper Lusatia.
 1523 Smoke grey Marle; from Sangerhausen.
 1524 Greyish black Marle; from Upper Lusatia.

b. Varieties of the External Form.

- 1525 A blunt cornered fragment of somewhat sandy Marle; from Vanneberg, in Sweden.

1526 Another

- 1526 Another, with a globular cavity; from the same place.
- 1527 An *oblate spheroid* of Marle; from Saxony.
- 1528 A fragment of a Marle spheroid, in which an excavation must have existed, since Siderocalcite has crystallized therein; from Upper Lusatia.
- 1529 A fragment of a rather argillaceous Marle spheroid, which must have been quite hollow, since an entire groupe of pyramidal acicular crystals of Calcareous Spar has formed therein, over which Martial Pyrites is strewed; from Hesse.

c. Varieties of the Fracture.

- 1530 *Thick slaty* indurated Marle; from Eisleben.
- 1531 *Fine slaty*, somewhat argillaceous Marle; from the vicinity of Meissen.
- 1532 A piece of indurated Marle the fracture of which passes from the *slaty* into the *earthy*; from Upper Lusatia.
- 1533 Very indurated Iron shot Marle of a *fine earthy* fracture, here and there a little resembling the *conchoidal*; from the same place.
- 1534 Bluish grey, partly smoke grey Marle, of a perfectly *fine earthy*, passing into the *conchoidal*, fracture; from Kamichinsk on the Wolga.

9. BITUMINOUS MARLITE.

Kirwan, 1st Family, 3d Class of Marles.

- 1535 Dark brownish black Bituminous Marlite, with superficial purple Copper Ore; from Eisleben.
- 1536 A piece of Bituminous Marlite, with the impression of an entire fish; from the same place.
- 1537 A tolerably fine slaty Bituminous Marlite; from the same place.
- 1538 Thick and curved slaty Bituminous Marlite, with much superficial Copper Pyrites and vitreous Copper Ore; from the same place.

10. APATITE.

*Kirwan. 1246 Spec. Calc. Gen.**a. Varieties of the Colour.*

- 1539 *Pale violet blue* Apatite, in a mixture of Quartz, a large quantity of crystallized Tin Ore, some Lithomarga and fluor Spar, as also greenish grey Mica; from Ehrenfriedersdorf.
- 1540 Apatite of an intermediate colour between *clove-brown* and *rose-red*, in Lithomarga, with adhering Quartz, much Tin Stone, Fluor Spar and Arsenical Pyrites; from the same place.
- 1541 *Clove brown* Apatite in the same mixture, with the superaddition of much Steatites; from the same place.
- 1542 *Dark mountain green*, inclining to *leek green*, Apatite, in a micaceous compound, from the Ulmanstollen at Schneeberg.

b. Varieties of the External Figure.

- 1543 Apatite crystallized in perfect Octohædral prisms, with Fluor Spar and crystallized Tin Ore, in Quartz which is mixed with much Talk, from Ehrenfriedersdorf.
- 1544 Apatite crystallized in short similar prisms with the extreme edges truncated, on Quartz with adhering flint; from Schneeberg.

Rem. This is beside of a pure white colour and strewed very abundantly every where over the Quartz, and is one of the rarest specimens of this species.

- 1545 Apatite crystallized in very short, unequal sided, in other respects similarly modified, octohædral prisms, in argilliferous and micaceous Quartz; from the Ulmanstollen at Schneeberg.

c. Varieties

c. *Varieties of the Fracture.*

- 1546 Apatite in broken crystals, in which the *thin* and *plain foliated* fracture is very distinct, in the same compound; from the same place.

II. GYPSUM.

Kirwan. 10th Spec. Calc. Gen.

A. *Compact Gypsum.*

- 1547 Yellowish, almost pure white, compact Gypsum; from Italy.
 1548 Greyish white Compact Gypsum, abundantly, yet delicately streaked with dark grey; from Bottendorf.
 1549 Compact Gypsum similarly, though undulatingly streaked; from Cobourg.
 1550 Greyish white Compact Gypsum, veined with dark grey; from Italy.
 1551 Dark smoke grey Compact Gypsum, whose splintery fracture is traversed by fine granular distinct concretions, therefore it passes into the following variety; from Ilmenau.

B. *Foliated Gypsum.*a. *Varieties of the Colour.*

- 1552 *Very pale greyish*, almost pure white, Foliated Gypsum; from Iceland.
 1553 *Pale greyish white* Foliated Gypsum; from Italy.
 1554 *Pale yellowish grey* Foliated Gypsum, mixed with white; from the same place.

Rem. This admixture, and the two foregoing specimens, come very near to the first variety.

- 1555 *Tolerably dark grey* Foliated Gypsum mixed with white; from Italy.
 1556 *Smoke grey* Foliated Gypsum from the same place.

1557 *Pale*

- 1557 *Pale wine yellow* Foliated Gypsum; from the vicinity of Jena.
 1558 *Light carnation red* Foliated Gypsum; from Nordhausen.
 1559 *Dark carnation red* Foliated Gypsum, mixed with greyish; from the same place.
 1560 *Greenish grey* Foliated Gypsum, mixed with *greyish white*; from Thuringia.
 1561 *Olive green* Foliated Gypsum, traversed by slips of greenish grey; from the same place.

b. Varieties of the External Form.

- 1562 *Massive* Foliated Gypsum, in compact ditto; from Artern in Thuringia.

c. Varieties of the Fracture.

- 1564 Foliated Gypsum of a *plain* foliated fracture; from Eisleben.
 1565 A piece of Foliated Gypsum whose fracture passes into the *broad striated*; from Cobourg.
 1566 *Narrow and parallel* Striated Gypsum; from Botten-dorf.
 1567 *Extremely narrow* striated Gypsum, with large *splinters*, therefore passing into the foregoing variety; from Eisleben.

d. Varieties of the distinct Concretions.

- 1568 Foliated Gypsum of imperfectly *straight* and *thick columnar* distinct concretions; from Wimmelburg, near Eisleben.
 1569 Gypsum with *curved columnar* distinct concretions; from the same place.
 1570 Gypsum, of *large granular* distinct concretions; from Artern.
 1571 A piece of Gypsum, of partly *coarse*, partly *small granular* distinct concretions; from Eisleben.
 1572 Foliated Gypsum of *fine granular* distinct concretions; from the same place.

1573 A piece

- 1573 A piece of Foliated Gypsum of *exceeding fine granular* distinct concretions, which therefore passes into the compact, traversed by *smoke grey* slips; from the same place.

C. *Fibrous Gypsum.*

- 1574 Silvery white, delicately Fibrous Gypsum; from Jena.
 1575 Silvery white Fibrous Gypsum, slightly inclining to greyish; from the same place.
 1576 Yellowish white, curved Fibrous Gypsum, passing into the striated; from Nordhausen.

12. *SPECULAR GYPSUM.*

Kirwan, 2d Variety, 4th Family of Gypsum.

a. *Varieties of the Colour.*

- 1577 *Pure white* specular Gypsum; from Eisleben.
 1578 *Pure white*, very slightly inclined to *yellowish* Specular Gypsum; from the same place.
 1579 *Yellowish grey* Specular Gypsum; from Bottendorf.
 1580 *Dark yellowish grey*, in some places *smoke grey*, Specular Gypsum; from Ilmenau.
 1581 Specular Gypsum passing from the *smoke grey* into *blackish grey*; from the same place.

b. *Varieties of the External Shape.*

a. a. *The Common External Shape.*

- 1582 *Massive* Specular Gypsum, in an argillaceous Sandstone; from Cobourg.

b. b. *The Regular External Figure.*

a. *Prisms.*

- 1583 Specular Gypsum crystallized in Hexhædral Prisms, bevelled

- bevilled at the extremities, the bevilling planes set on the opposite lateral edges.
- 1584 Crystallized Specular Gypsum in similar, detached prisms, bevilled very obtusely.
- 1585 Crystallized Specular Gypsum in much longer prisms in proportion to their breadth; from Upper Lusatia, as are the two first.
- 1586 Crystallized Specular Gypsum in still more slender and smaller, similar prisms, in a black clay; from the black pit at Lautenthal.
- 1587 Specular Gypsum crystallized in the same manner, but coalited in masses and small; from Sangerhausen.
- 1588 Crystallized Specular Gypsum in very small, similar prisms; from Artern.
- 1589 Crystallized Specular Gypsum in Hexhædral Prisms acuminated by four planes which are seated on the lateral edges, the crystals very irregularly connected therefore indistinct, in fine grained Gypsum; from Thuringia.
- 1590 A solitary, similar Crystal, in which this crystallization is more distinct, with two acuminating planes contiguous, therefore the whole has a Rhomboidal appearance; from Upper Lusatia.

b. Rhombs.

- 1591 Crystallized Specular Gypsum crystallized in Rhombs, with the extreme planes bevilled; from the same place.

Rem. This crystallization results from the foregoing in this manner, four of the lateral planes are unequally smaller than the other two, and the bevilling planes at the extremity are nearly equal to the former.

- 1592 Specular Gypsum crystallized in somewhat thinner, similar Rhombs; from Lieskau.
- 1593 Crystallized Specular Gypsum in still broader similar Rhombs; from Dolau.
- 1594 Crystallized Specular Gypsum in Rhombs penetrating and adhering to one another; from Wehrau.
- 1595 Specular

- 1595 Specular Gypsum in similar Rhombs, scopiformly connected together; from the same place.

Rem. The crystals are at the same time longer.

- 1596 Similarly crystallized Gypsum, but stellularly aggregated, besides which it may be observed that those Rhombs are so closely connected in pairs by two of their lateral planes, that the whole by reason of this aggregation might be considered as Prisms with their extreme planes excavated; from the same place.
- 1597 Specular Gypsum crystallized in somewhat smaller, rectangularly coalited Rhombs; from the same place.

γ Lenses.

- 1598 A solitary perfect Lens of Specular Gypsum; from Sangerhausen.
- 1599 An entire groupe of similar Lenses, which are all implanted nearly parallelly by the edges on Massive Specular Gypsum; from the same place.

c. Varieties of the Fracture.

- 1600 Perfectly plain foliated Specular Gypsum; from Eisleben.
- 1601 A piece of Specular Gypsum, with a curved foliated fracture; from the same place.
- 1602 A fragment of Specular Gypsum, which on two of its surfaces exhibits a foliated, but on the others a delicately fibrous fracture, which cuts the direction of the lamellæ at right angles.

Rem. The foliated may be considered as the transverse, and the fibrous as the longitudinal fracture—the specimen is itself very rare.

d. Varieties of the Fragments.

- 1603 A perfect rhomboidal fragment, in which the specularity of the two large planes, and the streaking of the

the four others, is extremely obvious; from Bohemia.

Rem. Here care should be taken that this streaking may not be confounded with the fibrous fracture of the foregoing specimen, since the fibres have a direction which is perpendicular to these streaks.

e. Varieties of the Distinct Concretions.

- 1604 A piece of Specular Gypsum with imperfect *thick columnar* distinct concretions; from Eisleben.
 1605 A piece of Specular Gypsum of partly *large* partly *coarse granular* distinct concretions.
 1606 A fragment of Specular Gypsum, wherein *lamellar* distinct concretions are observable; from Zinnwald.

f. Varieties of the Transparency.

- 1607 A large piece of Specular Gypsum above an inch thick, and yet *quite transparent*; from Eisleben.
 1608 A piece of Specular Gypsum *translucid only*; from Ilmenau.

Rem. The cause of this slight degree of transparency is owing to an intimate admixture of Swine-stone, as is evident from the smell which this specimen gives out when rubbed by an hard substance.

13. FLUOR.

Kirwan, 11th Spec. Calc. Gen.

A. Compact Fluor.

- 1609 Smoke grey, in some places Verdigris green, compact Fluor; from Strassberg in the Hartz.
 1610 Partly greyish white, partly pearl and smoke grey Compact Fluor; from the same place.

B. Fluor

B. Fluor Spar.

a. Varieties of the Colour.

a. a. White.

- 1611 *Greyish white* Fluor Spar, mixed with much brown blende and some Galena; from the Temple Mine in Derbyshire.
- 1612 *Greenish white* Fluor Spar mixed with foliated Baroselenite; from Gerisdorf.
- 1613 *Somewhat dark greenish white* Fluor Spar, Iron Shot in the Rifts, and with a little copper Pyrites interspersed; from Stollberg.
- 1614 Crystallized Fluor Spar, passing from *yellowish white* through *reddish white* into *pearl grey*, with Galena and crystals of Baroselenite, on Quartz, to which underneath a quartz groupe strewed over with Crystals of Sparry Iron Ore, adheres; from Derbyshire.

b. b. Blue and Grey.

- 1615 Fluor Spar, the colour of which is intermediate between *pearl grey* and *violet blue*, with adhering yellow ditto; from Gerisdorf.
- 1616 *Violet blue* Fluor Spar, mixed with *greenish grey*; from the same place.
- 1617 *Dark violet blue* Fluor Spar, in Talc; from Ehrenfriedersdorf.
- 1618 *Extremely dark violet blue* Fluor Spar passing into *black* at the edges, mixed with common ditto, on Iron-shot Calcareous Spar; from Cornwall.
- 1619 *Smalt blue* Fluor Spar, strewed over with brown Blende, on compact Baroselenite, which is also mixed with brown Blende; from Derbyshire.
- 1620 *Smoke grey* Fluor Spar, with inlaying Martial Pyrites and brown Blende underneath; from Hungary.
- 1621 *Pale smoke grey* Fluor Spar a little inclining to *violet blue*, mixed with sparry Iron Ore; from Gerisdorf.
- 1622 *Sky-blue* Fluor Spar, a little inclining to *greyish* in Crystals, with adhering Quartz; from Ehrenfriedersdorf.

- 1623 *Deep sky-blue* Fluor Spar, on green ditto; from the same place.
- 1624 *Light sky-blue* Fluor Spar, in green ditto, with adhering Gneiss, and strewed over with Martial Pyrites; from the same place.

c. c. Green.

- 1625 *Dark grass-green* Fluor Spar a little inclining to *verdigris green*; from Gersdorf.
- 1626 *Deep grass-green* Fluor Spar, mixed with some white ditto; from the same place.
- 1627 *A little brighter grass-green* Fluor Spar mixed with violet blue; from Freiberg.
- 1628 *Pale grass-green* Fluor Spar, mixed with drusy Quartz; from the same place.
- 1629 *Pale grass-green* Fluor Spar, passing from the *verdigris green* through *greyish* into *white*; from the same place.

d. d. Yellow.

- 1630 *Pale wine yellow* Fluor Spar, crystallized in cubes, with an overlaying Quartz groupe, and very small Crystals of Copper Pyrites on Baroselenite, with crystallized Calcareous Spar here and there; from Gersdorf.
- 1631 *A little darker wine yellow* Fluor Spar here and there inclining to *green*, with small and very small tabular Baroselenite, as also pyramidal Calcareous Spar and decomposed Gneiss underneath; from Freiberg.
- 1632 *Full wine yellow* crystallized Fluor Spar, with very small Quartz Crystals overlaid principally on one side, here and there also with crystals of Copper Pyrites, on green massive ditto which is mixed with some Baroselenite; from Gersdorf.
- 1633 *Somewhat darker wine yellow* Fluor Spar in Crystals, on paler massive ditto, strewed over with Copper Pyrites, and here and there intermixed with Baroselenite; from Gersdorf.
- 1634 *Wax yellow* crystallized Fluor Spar strewed over with Galena; from the same place.

1635 *Light*

- 1635 *Light honey yellow* Fluor Spar mixed with green ditto; from the same place.
- 1636 *Full wine yellow* Fluor Spar strewed over with Crystals of Quartz and Copper Pyrites on decayed Argillite; from the same place.
- 1637 *Dark honey yellow* Fluor Spar in crystals on Baroselenite with some adhering Argillite; from the same place.

c. c. Brown.

- 1638 *Yellowish brown* approaching to *honey yellow* Fluor Spar in crystals on massive greenish ditto, with a little disseminated Copper Pyrites; from the same place.

f. f. Annulated and Spotted.

- 1639 *Yellowish brown* Fluor Spar *violet blue* at the edges, on a mixture of Quartz with some disseminated Galena; from the Erzgebirge.
- 1640 A groupe of *pale greenish* Fluor Cubes with broad *violet blue* margins, and coated here and there by crystals of Martial Pyrites; from Ehrenfriedersdorf.
- 1641 *Honey yellow* Fluor Spar with *dark violet blue* borders, in crystals, on the same, Massive, and with adhering Iron shot decayed Gneiss; from the same place.
- 1642 *Greenish grey* Fluor Spar with *dark violet blue* borders, in crystals resting on Massive *violet blue* ditto, here and there strewed over with Martial Pyrites, and also intermixed with Quartz; from the Erzgebirge.
- 1643 *Verdigris green*, inclining to *mountain green* Fluor Spar with *sky-blue* borders, crystallized in cubes, with a Quartz groupe on grass-green Massive ditto, to which some yellow adheres, and in which Galena is disseminated; from Gerisdorf.
- 1644 A large *sky-blue* Fluor Spar cube spotted with *violet blue*; from Ehrenfriedersdorf.

b. Varieties

*b. Varieties of the External Shape.**a. a. The Common.*

- 1645 *Massive* wine yellow Fluor Spar, in Calcareous Spar, with some adhering Quartz; from Gerisdorf.

*b. b. The Regular.**a. Cubes.**a. a. Perfect.*

- 1646 A solitary cube of Fluor Spar of middling size, seated on Gneiss; from Ehrenfriedersdorf.
- 1647 A groupe of similar, in some places larger parallellopedal Fluor Spar cubes, coated particularly on one side with very small drusy Quartz, and crystals of Copper Pyrites; from Gerisdorf.
- 1648a A similar, large groupe of somewhat smaller Fluor Spar cubes, penetrating each other, coated in the same manner; from the same place.
- 1648b. Fluor Spar crystallized in similar cubes, partly penetrating and partly adhering to one another, coated with a Quartz groupe, the crystals of which are small, on massive Fluor Spar, wherein Galena is disseminated, but the whole on Argillite; from the same place.
- 1649 A groupe of still somewhat smaller perfect Fluor Spar cubes, strewed over pretty equally with very small crystals of Copper Pyrites, and in one place coated with a large quantity of compact Baroselenite on Calcareous Spar, which is mixed with massive Fluor Spar, as also Copper Pyrites and grey Copper Ore, and to which Copper Pyrites and grey Copper Ore adhere; from the same place.
- 1650 A groupe of green Fluor Spar Cubes which are mostly of a middling size, yet approaching nearly to the small size, in Massive Fluor Spar; from the same place.
- 1651 A groupe of small perfect Fluor Spar Cubes, which however border on the foregoing variety, on one side

- side overlayed with very numerous small tables of Baroselenite and minute crystals of Copper Pyrites; from the same place.
- 1652 Verdigris green Fluor Spar, crystallized in still somewhat smaller more perfect cubes, among which a larger one lays, mixed with Massive Fluor Spar and coated with a little Martial Pyrites; from Ehrenfriedersdorf.
- 1653 A groupe of similar Fluor Spar Cubes, in imperfectly spheroidal accumulations, with much overlaying Baroselenite, and here and there with crystals of Copper Pyrites; from Gersdorf.
- 1654 Crystallized Fluor Spar, in similar, partly smaller, partly larger cubes, penetrating and implanted on one another, forming a groupe which is thickly coated on one side with minute Quartz Crystals, but strewed over in general with very small crystals of Copper Pyrites, and is superimposed on Baroselenite; from the same place.
- 1655 Fluor Spar crystallized in a little smaller, partly thinner similar cubes, with crystals of Baroselenite upon Quartz, with adhering Argillite; from the same place.
- 1656 Fluor Spar in still smaller, similar cubes, in great numbers implanted on and penetrating each other, with much overlaying Calcareous Spar, and a little intermixed Galena, on Argillite; from the same place.
- 1657 A beautiful large groupe of reniformly, almost globularly accumulated Fluor Spar cubes, on Baroselenite and Massive Fluor Spar in which Galena is intermixed, with adhering Argillite; from the same place.
- 1658 A groupe of very small perfectly cubically crystallized Fluor Spar, wherein some small cubes occur, covered with much Baroselenite, and coated underneath with massive and drusy Quartz; from Freiberg.
- 1659 Similarly crystallized Fluor Spar, but with this variation, that there the crystals inhered for the most part singly, but here they penetrate and are implanted upon one another, and at the same time with this remarkable occurrence, that they have almost

most all lost their transparency, with lamellar Baroselenite and some Galena on Quartz; from the Hartz.

- 1660 Fluor Spar crystallized in cubes, partly with convex faces, coated with drusy Martial Pyrites; from Freiberg.

β. β. With Truncations.

- 1661 Fluor Spar crystallized in cubes with their angles slightly truncated, on Quartz which is mixed with Martial Pyrites and crystals of Baroselenite; from Marienberg.
- 1662 Crystallized Fluor Spar, wherein the regular shape, on account of the deep truncation of the angles, represents the perfect medium between the cube and octohædron, in talcose Mica; from Ehrenfriedersdorf.

Rem. The crystals are violet blue, partly small and partly very small.

β. Octohædron.

- 1663 A perfect octohædron of full grass-green Fluor Spar; from Marienberg.

c. Varieties of the Fracture.

- 1664 A piece of dark wine yellow Fluor Spar, with a very *thin and plain foliated* longitudinal fracture, but in the transverse, yet in an oblique direction, with a *conchoidal* fracture; from Freiberg.
- 1665 A piece of Fluor Spar, whose foliated fracture here and there exhibits some *splinters*, with minutely disseminated Copper Pyrites; from Stolberg in the Hartz.

Rem. This is the transition into Compact Fluor.

d. Varieties

d. *Varieties of the Fragments.*

- 1666 A large *Tetrahedral Pyramidal Fluor Spar* fragment; from Rammelsberg.

e. *Varieties of the Distinct Concretions.*a. a. *The Columnar.*

- 1667 A piece of Fluor Spar, with *slender and straight Columnar* distinct concretions; from Derbyshire.
 1668 A similar piece of ditto, whose *diverging Columnar* distinct concretions pass into the *Granular*; from the same place.

b. b. *The Granular.*

- 1669 Fluor Spar, of *small Granular* distinct concretions, on Quartz with Gneiss; from Freiberg.
 1670 Fluor Spar. of partly *coarse*, partly *large, Granular* distinct concretions, which incline a little to the *Lamellar*; from Stollberg.

γ. γ *The Lamellar.*

- 1671 Fluor Spar of very distinctly *curved*, partly *thick*, partly *thin Lamellar* distinct concretions, in Martial Pyrites; from Strassberg in the Hartz.

f. *Varieties of the Transparency.*

- 1672 Gold yellow quite transparent Fluor Spar; from Gersdorf.
 1673 Pale Violet blue *femitransparent* Fluor Spar; from Ehrenfriedersdorf.
 1674 Greenish, in a very *high degree transluceid* ditto; from Strassberg.
 1675 Extremely dark Violet blue ditto *transluceid* at the edges; from England.

B b

1676 Crystallized

- 1676 Crystallized Fluor Spar become quite opaque, in a compound of Lithomarga, much Arsenical Pyrites and some Crystals of Tin Ore; from Ehrenfriedersdorf.

Rem. Here the loss of the Water of Crystallization is evidently the cause of the opacity.

5th BARYTIC GENUS.

1. BAROSELENITE.

Kirwan, 2nd Spec. Bar. Gen.

A. Earthy Baroselenite.

- 1677 Reddish white earthy Baroselenite; from the Krieg and Frieden, near Freiberg.

B. Compact Baroselenite.

a. Varieties of the Colour.

- 1678 Greyish white compact Baroselenite, penetrated with Martial Pyrites and Galena; from Freiberg.
 1679 Pale smoke grey Compact Baroselenite, on a mixture of Galena and Fluor Spar, strewed over with brown Blende; from Gersdorf.

b. Varieties of the External Form.

- 1680 Compact Baroselenite with cubic impressions; from Freiberg.
 1681 A singular, round, and at the same time oblong piece of Compact Baroselenite, in which a former Hexahedral Prismatic shape with an acumination, is evidently perceptible, coated on one side with Martial Pyrites; from the Isaac near Freiberg.

Rem. In this Specimen also, the earthy Fracture is observable.

C. Foliated

C. *Foliated Baroselenite.*a. *Varieties of the Colour.*

- 1682 Foliated Baroselenite passing from the *Isabella* yellow into *yellowish grey*, with disseminated Galena; from Gerisdorf.
- 1683 *Greyish white* ditto, coloured *reddish* here and there by Iron Ochre. It is also Massive, in Quartz, with an overlaying Quartz, and also Calcareous Spar groupe; from Freiberg.

b. *Varieties of the External Form.*a. a. *The particular.*

- 1684 *Reniform* Foliated Baroselenite, coated with minute Crystals of Martial Pyrites; from Freiberg.
- 1685 Foliated Baroselenite, *narrow* and *Tetrahedrally cellular*, with superficial Copper Pyrites; from the same place.

b. b. *The Regular.*

- 1686 A singular Brecchia of Foliated Baroselenite, in which the fragments have a tolerably thick, quite obtuse, Pyramidal shape, and are thrown over one another, but are partially studded with Cubes of Fluor Spar, and the whole is seated on Quartz, which is partly itself drusy and partly overlaid with drusy Fluor Spar; from Freiberg.
- 1687 Foliated Baroselenite, crystallized in very small and very thin, rectangular tetrahedral Tables, which are quite globularly accumulated, with some disseminated Galena on green Fluor Spar; from Freiberg.
- 1688 Foliated Baroselenite, crystallized in minute reniformly aggregated Tables, with overlaying Tabular Lamellar ditto, and underneath with much brown, and a little yellow Blende; from Transylvania.

b. *Varieties of the Fracture.*

- 1689 Brownish red Foliated Baroselenite, whose *curved foliated* Fracture exhibits very numerous *Splinters*, traversed by Quartz; from Freiberg.
- 1690 Similar white Baroselenite with a perfectly *curved foliated* fracture and small Granular distinct concretions, which therefore nearly approaches the following variety; from the same place.
- 1691 Foliated Baroselenite, of very *small Granular* distinct concretions, and nearly *plain foliated* fracture; as also a very Lamellar appearance, therefore forming the transition into the following variety, with adhering Fluor Spar; from Gersdorf.

D. *Lamellar Baroselenite.*a. *Varieties of the Colour.*

- 1692 *Bright, nearly silvery white*, Acicular Baroselenite, on Iron shot Quartz; from Freiberg.
- 1693 *Very light greyish white* Lamellar Baroselenite; from the same place.
- 1694 *Reddish white* ditto; from the same place.
- 1695 *Bright Carnation red* ditto mixed with *reddish white*, and some Fluor Spar; from the same place.
- 1696 *Very dark Carnation red* ditto; from the same place.
- 1697 *Brownish red* ditto; from the same place.
- 1698 *Dark Smoke grey*, spotted with *Carnation red* ditto, in a groupe; from Marienberg.
- 1699 *Light Smoke grey*, spotted with *yellowish brown*, tabular ditto, on *reddish white* ditto; from Freiberg.
- 1700 *Olive green* ditto, in large tables; from the Hartz.
- 1701 Lamellar Baroselenite inclining from *Verdigris green* into *Sky blue*; from the Hartz.
- 1702 *Yellowish white* Lamellar Baroselenite on compact ditto; from Freiberg.

b. *Varieties*

*b. Varieties of the External Shape.**a. a. The Common.*

- 1703 *Massive* Baroselenite with Ironshot Earthy Cobalt, some Copper Tile Ore, and Azure Copper Ore intermixed; from Saalfeld.

*b. b. The Regular.**a. Pyramids.*

- 1704 Lamellar Baroselenite crystallized in double Tetrahædral Pyramids, which are elongated, and the opposite obtuse edges of the common base, are truncated, besides, they partly terminate in a point, and partly in an edge, on a Calcareous Spar groupe with much crystallized Copper Pyrites, the whole upon Blendè; from Hungary.
- 1705 Baroselenite crystallized in a similar manner, but extremely elongated and very deeply truncated, the crystals penetrating each other, with a Calcareous Spar groupe and numerous octohædral crystals of Copper Pyrites on cellular Quartz; from the same place.

*β. Tetrahædral Prisms.**a. a. Rectangular.**α. With Acuminations.*

- 1706 Baroselenite crystallized in rectangular tetrahædral Prisms acuminate at the extremities by four planes which terminate in an edge, partly of middling size and partly small, on compact brown Iron Stone; from Iberg in the Hartz.
- 1707 Baroselenite crystallized in thicker, partly adhering by their lateral planes, similar Prisms, the edge of the acumination in many of them, though perhaps accidentally

accidentally truncated, on compact brown Iron Stone which is mixed with much Massive Baroselenite ; from the same place.

2. *Bevilled.*

- 1708 Lamellar Baroselenite crystallized in similar Prisms with their extreme planes bevilled, on Quartz ; from Marienberg.

Rem. The lateral planes are equal, and the bevilling planes are set on the alternate lateral edges.

- 1709 Greenish grey Baroselenite in similar, somewhat more slender, and with the extremities inverted, scopiformly aggregated Prisms on Quartz ; from Freiberg.

β β . *Rhomboidal.*

- 1710 Baroselenite in rhomboidal tetrahedral Prisms, acuminate by four planes which are seated on the lateral edges, and cellularly intersecting one another ; from the Hartz.
- 1711 Baroselenite in similar, but extremely slender acicular crystals, laying solitarily in Iron-shot Quartz Acicular Baroselenite ; from Freiberg.
- 1712 Crystallized Baroselenite in similar, but more numerous Prisms, adhering together in bundles ; from the same place.
- 1713 Similarly crystallized Baroselenite aggregated in still somewhat thicker bundles, again confusedly connected, partly coated with Iron Ochre, partly mixed with Iron Shot Clay ; from the same place.
- 1714 Prismatic crystallized Baroselenite in very thick, similarly aggregated bundles, with many more slender similar bundles, in Iron Shot Quartz ; from the same place.
- 1715 Baroselenite crystallized in the same manner, but with this variation, that the thick bundles are again scopiformly aggregated, thinly overlaid with Iron Ochre

- Ochre and some micaceous Iron Ore; from the same place.
- 1716 Similarly crystallized Baroselenite, only more broadly aggregated, the bundles more compact, and confusedly connected, mostly at their broader extremities; from the same place.
- 1717 Crystallized Baroselenite in very broad and numerous bundles, penetrating and adhering to each other, representing nearly regular rectangular tetrahedral Prisms; from the same place.
- 1718 A small detached, similar piece of lamellar Baroselenite, which exhibits very broad and so closely connected bundles, that their true shape is with difficulty discoverable.

γ. Rhomboidal Tetrahedral Tables.

a. a. Entire.

- 1719 Baroselenite crystallized in perfect rhomboidal, rather thick tetrahedral tables, forming a large groupe overlaid with a Calcareous Spar groupe, in Quartz, which is mixed with much Copper Pyrites; from the Hartz.
- 1720 Baroselenite crystallized in thinner, similar tables, cellularly penetrating each other, with some superficial Iron Ochre and Blende strewed over; from Transylvania.
- 1721 A groupe of similar tabularly crystallized Baroselenite, in which the angles are more acute, and the tables are connected by their lateral planes, at the same time strewed over with pyramidal Calcareous Spar, and intermixed with Copper Pyrites and Blende; from the Hartz.
- 1722 Baroselenite crystallized in small, very thin similar tables, with much Blende and some Galena, and an intermixture of Martial Pyrites; from the same place.

β. β. Bevilled.

- 1723 Baroselenite crystallized in similar tables, but in which

- which the obtuse angles are deeply bevilled, the acute extreme edges on the other hand truncated, and the angles resulting from thence, again obtusely bevilled, in grey antimonial Ore mixed with some Quartz; from Felsöbania in Upper Hungary.
- 1724 Similarly, and of a middling size, crystallized Baroselenite, but without the angles of the truncating planes of the edges being acuminated, forming small cells by intersecting each other; from Schemniz, in Lower Hungary.

3. Hexhædral Prisms.

a. a. Acuminated.

- 1725 Baroselenite crystallized in rather broad hexhædral Prisms acuminated by four planes which terminate in an edge, the crystals partly implanted on, and partly penetrating each other, with some Quartz and Martial Pyrites; from Marienberg.

β. β. Bevilled and truncated.

- 1726 Baroselenite crystallized in very broad hexhædral Prisms of middling size resembling tables, the extremities terminated by dihædral summits the planes of which are set on the acute lateral edges, the edge forming the apex, truncated, and the four angles produced by this also truncated, the Prisms mostly connected in pairs on a Fluor Spar groupe, with adhering decayed Gneifs; from the same place.
- 1727 Similarly, though not so distinctly crystallized Baroselenite forming a beautiful groupe, the Prisms connected in considerable numbers; from the Isaac, near Freiberg.
- 1728 Similarly crystallized Baroselenite, but for the most part small, and in some places the crystals cellularly penetrating each other, on compact ditto, with adhering Martial Pyrites; from the same place.
- 1729 Crystallized Baroselenite in similar Prisms of a middling size, and small, with dihædral summits, the edges forming which are truncated, on compact ditto,

ditto, which is coated underneath by Martial Pyrites; from the same place.

7. 7. Bevilled only.

- 1730 Baroselenite crystallized in similar Prisms of middling size, though not so broad, perfectly bevilled at their extremities, forming a beautiful groupe on Massive ditto which is mixed with some Quartz and a little Martial Pyrites; from Marienberg.
- 1731 Baroselenite in similar, but broader Prisms, the bevilling planes seated on the broadest lateral planes, and the crystals adhering over one another, with very small overlaying crystals of Martial Pyrites; from Marienberg.
- 1732 Baroselenite crystallized in similar, though somewhat narrower Prisms, therefore not appearing so tabular, partly coated with drusy Martial Pyrites; from the same place.
- 1733 Baroselenite in similar, though small and perfectly transparent Prisms, in a groupe, with Ironshot Quartz; from Hungary.

2. 2. Truncated only.

- 1734 Baroselenite in broad hexhædral Prisms, the acute angles at the extremity truncated, the crystals mostly small and without accumulation, in Ironshot Massive Baroselenite; from the Hartz.
- 1735 A groupe of similar, but smaller prismatic crystallized Baroselenite in Ironshot Quartz; from Hungary.

1. 1. Without Deviation from the Primary Figure.

- 1736 Lamellar Baroselenite crystallized in perfect, tolerably long hexhædral Prisms, partly of a middling size, partly small, and very small, on somewhat Ironshot foliated ditto; from Iberg.
- 1737 A groupe of similar, shorter, perfectly hexhædral prismatic crystals of Baroselenite, partly of middling size, partly small, in Ironshot Massive, partly lamellar,

C c

- lamellar, partly foliated Baroselenite; from the same place.
- 1738 Baroselenite in still shorter, somewhat thicker hexahedral Prisms, inhering obliquely in Ironshot Massive ditto; from the same place.

1. Rectangular Tetrahedral Tables.

a. a. With two Bevellings.

- 1739 Crystallized Baroselenite in small tetrahedral tables with two of their extreme planes bevelled, cellularly intersecting each other on Quartz, in which a little Martial Pyrites is disseminated, with adhering crystallized Siderocalcite; from Hungary.
- 1740 The same crystallization; but more distinct, where the crystals are of middling size, but at the same time spheroidally accumulated, strewed over with numerous crystals of Calcareous Spar and Copper Pyrites, with some drusy Quartz underneath; from Goslar.

β. β. Perfect.

- 1741 Lamellar Baroselenite crystallized in perfect rectangular tetrahedral tables, mostly small and very thin, therefore no longer preserved entire throughout, on Quartz which is cobaltiferous, therefore indistinct; from Marienberg.

γ. γ. With four bevellings.

δ. With respect to the Size and Thickness.

- 1742 Baroselenite in small, similar tables, except that all the extreme planes are bevelled, on massive ditto; from Andreasberg.
- 1743 Baroselenite in similar, but a little thicker and larger tables, forming a groupe with massive ditto underneath; from Freiberg.
- 1744 A groupe of similar tabular crystals of Baroselenite which are still thicker, and are commencing middle sized,

- sized, strewed underneath with minute crystals of Copper Pyrites; from the Hartz.
- 1745 Similarly crystallized Baroselenite, but in much longer tables, on which a Calcareous Spar groupe and numerous very small crystals of Copper Pyrites occur; from Saxony.
- 1746 Baroselenite crystallized in still broader tables and with more acute bevillings, with an adhering Quartz groupe; from Tyrol.
- 1747 Baroselenite in tolerably thick, similar tetrahædral tables of middling size (exceeding two inches in length) strewed over with numerous, very small crystals of Martial Pyrites; from the Hartz.
- 1748 Baroselenite in very thick, similar tables, with much overlaying Martial Pyrites forming an overcast, and cubically crystallized Fluor Spar and also Galena, on Quartz; from the same place.

2. *With respect to the Aggregation of the Crystals.*

- 1749 A groupe of similar cellularly connected crystallized tabular Baroselenite which is partially strewed over with crystals of Copper Pyrites; from the Hartz.
- 1750 Lamellar Baroselenite crystallized in similar tables cohering by their lateral planes, with a small Calcareous Spar pyramid and numerous very small crystals of Siderocalcite on the surface; from Freiberg.
- 1751 A large groupe of the same sort, but the tables imperfect, and forming very large globular accumulations on massive Baroselenite with a little disseminated Galena; from the same place.
- 1752 Similarly crystallized Baroselenite, in somewhat smaller distinct globularly accumulated grains, strewed over with numerous very small crystals of Siderocalcite, and some disseminated Galena underneath; from the same place.
- 1753 Similarly crystallized Baroselenite but more distinct, globularly, almost a little acicularly accumulated, strewed over with numerous crystals of Martial Pyrites on Quartz, from which a slip of Siderocalcite separates the groupe; from the Hartz.

- 1754 Similarly crystallized Baroselenite, accumulated in somewhat flatter globular grains, coated underneath with some Martial Pyrites; from Freiberg.
- 1755 Tabularly crystallized Baroselenite accumulated in a similar, but amygdaloidal manner, partially coated with decayed Martial Pyrites; from Mies in Bohemia.
- 1756 Similarly crystallized Baroselenite accumulated in thinner, similar amygdaloidal grains, with a Fluor Spar groupe and Martial Pyrites in Quartz; from Freiberg.
- 1757 Similarly crystallized Baroselenite, accumulated in tolerably thick lenticular grains, somewhat Ironshot on the surface, and coated by very small crystals of Sparry Iron Ore; from the Hartz.
- 1758 Similarly crystallized Baroselenite, but doubly accumulated, viz. first in narrow elongated amygdaloidal grains, and secondly, in small and tolerably thin lenses which lay strewed over the former which are large, the whole pretty thickly coated by small cubes of Martial Pyrites; from the same place.
- 1759 Similarly crystallized Baroselenite, also doubly accumulated, but with this difference, that the Crystals are in the first instance, in coarse Globular, and in the second in very small lenticular accumulations coating the former quite thickly, with Massive Fluor Spar and Baroselenite underneath, the whole somewhat Ironshot; from Freiberg.

2. 2. With eight Brüllings.

- 1760 Baroselenite crystallized in the foregoing manner but with the angles also bevilled, coated underneath with Martial Pyrites.
- 1761 A groupe of somewhat smaller tables of Baroselenite implanted in great numbers on one another, coated with Martial Pyrites some Calcareous Spar and Siderocalcite, on Massive Baroselenite wherein Galena and Fluor Spar is intermixed; from Freiberg.
- 1762 Similarly crystallized Tabular Baroselenite, the Crystals aggregated in such a manner as to form partly

partly four sided, partly three sided large cells; from Freiberg.

2. *Hexhædral Tables.*

- 1763 Baroselenite crystallized in perfect Hexhædral tables, with a little indurated Clay.

n. *Octohædral Tables.*

- 1764 Baroselenite, crystallized in Octohædral Tables the alternate extreme planes bevilled, the Crystals piled on one another by their lateral planes, and the whole cellularly accumulated; from Transylvania.

c. *Varieties of the Fracture.*

- 1765 A piece of Lamellar Baroselenite, in which the perfectly plain foliated as well as the curved foliated fracture is very distinct; from Freiberg.

d. *Varieties of the Fragments.*

- 1766 Lamellar Baroselenite affording Rhomboidal fragments, which however are not so distinct as in Calcareous Spar and Felspar; from the same place.

e. *Varieties of the Distinct Concretions.*

- 1767 Baroselenite of straight Lamellar distinct concretions which however in some places run in different directions, therefore appearing large Granular; from Freiberg.
- 1768 A piece of ditto consisting of thick and straight Lamellar distinct concretions, which at the same time slightly converge to a centre, mixed with Quartz and green Fluor; from Würtemberg.
- 1769 A piece of Baroselenite of straight Lamellar distinct concretions, parallel indeed, but so interrupted, that from them again coarse Granular ones appear to originate; from Freiberg.

1770 Baroselenite

- 1770 Baroselenite of tolerably *thin Lamellar* distinct concretions, mixed with Azure Copper, Tile Copper Ore and Mountain green; from Saalfeld.
- 1771 A piece of *Lamellar Baroselenite* of very *thin and parallel Lamellar* distinct concretions, with adhering foliated ditto; from Freiberg.

E. *Bolognian Spar.*

Kirwan, 4th Family, 2nd Spec. Baryt. Gen.

- 1772 Yellowish grey slightly inclining to greenish, Bolognian Spar.
- 1773 Smoke grey inclining to silvery white Bolognian Spar.

Rem. Both these specimens are rounded fragments, in one the fracture is narrow, in the other broad, in both divergently striated; in the former also distinct concretions are discoverable.

SECOND CLASS.

S A L T S.

I. VITRIOLIC SALTS.

1. NATIVE VITRIOL.

a. *Varieties of the Colour.*

- 1774 Greyish white Native Vitriol, with some adhering Argillite; from Rammelsberg.
- 1775 Verdigris green Native Vitriol, on and in decayed Argillite; from Fahlun in Sweden.
- 1776 Rather dark Sky blue Native Vitriol, on a sandy slate; from Russia.

b. *Varieties of the External Shape.*

- 1777 Massive Native Vitriol in decayed Argillite, thro' which

which it forms a slip and is also disseminated in it; from the same place.

- 1778 *Tubuliform* Native Vitriol; from Graul near Anna-
berg, in the Erzgebirge.
- 1779 A Martial Pyrites in extremely Minute *Cryfals* de-
composed to a perfect Native Vitriol; from Johan-
georgenstadt.
- 1780 Red Misy; from Goslar.

2. CAPILLARY SALT.

- 1781 Capillary Salt, reflecting from the yellowish into
silvery white, but internally perfectly silvery white;
from Idria.

3. STONE BUTTER.

- 1782 Yellowish brown Stone Butter, on Aluminous
Slate, originating from it; from Muskau in Upper
Lusatia.

2. MURIATIC SALTS.

1. COMMON SALT.

A. *Lamellar Common Salt.*

a. *Varieties of Colour.*

- 1783 *Bright white*, slightly inclining to *greyish*, Lamellar
Common Salt; from the Salt Mountain near Her-
manstadt in Transylvania.
- 1784 *Greyish white* Lamellar Common Salt, with adher-
ing *reddish white* ditto; from the same place.
- 1785 *Smoke grey* passing through *Pearl grey* into *red* dit-
to; from Halle in Tyrol.
- 1786 *Pale Carnation red* Lamellar Common Salt, with
adhering Argillite; from the same place.
- 1787 *High Carnation red* ditto; from the same place.
- 1788 A piece of Lamellar Common Salt of an interme-
diate colour between *Carnation* and *Hyacinth red*;
from the same place.

1789 *Brownish*

- 1789 *Brownish red* ditto; from the same place.
 1790 *Brownish red* Lamellar Common Salt, in *bright white* ditto; from the same place.

b. Varieties of the External Shape.

a. a. The Common.

- 1791 *Massive* Lamellar Common Salt, with adhering greenish grey Clay; from Wielizka in Galicia.

b. b. The Particular.

- 1792 Lamellar Common Salt, with deep conical impressions; from Halle.

a. c. The Regular.

- 1793 A groupe of perfectly cubically crystallized Common Salt, globularly accumulated, the Crystals small but nearly approaching to the middling size, and indeed some are actually so; from Wielizka.
 1794 A groupe of similar small Common Salt Cubes, accumulated without any particular order, with minute ditto closely connected adhering underneath; from the same place.

c. Varieties of the Fracture.

- 1795 A piece of Common Salt with a perfectly plain foliated fracture; from Transylvania.
 1796 A piece of ditto with a curved foliated, approaching to the *Conchoidal*, fracture; from Halle in Tyrol.
 1797 Lamellar Common Salt of a minute and curved foliated fracture, at the same time exhibiting numerous Splinters; from the same place.

d. Varieties of the Fragments.

- 1798 A Cubic fragment of Common Salt; from Hermannstadt in Transylvania.
 1799 A Tetrahedral Prismatic fragment of Common Salt; from the same place.

d. Varieties

e. Varieties of the distinct Concretions.

- 1800 Lamellar Common Salt, with *large Granular* distinct concretions, with blackish indurated Clay laying here and there on the surface; from Halle in Tyrol.
- 1801 Lamellar Common Salt, with *coarse Granular* distinct concretions; from Wielizka.
- 1802 Lamellar Common Salt, with *small Granular* distinct concretions, penetrated with greyish Clay; from the same place.
- 1803 A very beautiful piece of Common Salt, whose *Granular* distinct concretions are arranged in such a manner lengthways, that they acquire an imperfectly *Columnar* appearance; from the same place.

f. Varieties of Transparency.

- 1804 A large, four and an half-inch long, three and an half broad, and one and three fourths thick, fragment of Lamellar Common Salt which is *perfectly transparent*; from the same place.
- 1805 *Semi-transparent* Lamellar Common Salt, with adhering Bituminous Wood; from the same place.

*B. Fibrous Common Salt.**a. Varieties of the Colour.*

- 1806 *Very pale Pearl grey*, passing into *greyish white*, Fibrous Common Salt, with adhering red Lamellar ditto; from Tyrol.
- 1807 *Pearl grey*, more inclining to *bluish*, Fibrous Common Salt; from the same place.
- 1808 *Violet blue* fibrous Common Salt, mixed with *Carnation red* Lamellar ditto and some indurated Clay; from the same place.
- 1809 *Carnation red* fibrous Common Salt, mixed with *greenish* indurated Clay; from Gallicia.

b. *Varieties of the Fracture.*

- 1810 Extremely delicately curved, but parallel, fibrous Common Salt; from Tyrol.
- 1811 A piece of Common Salt whose fracture passes from the fibrous into the striated, and from thence into the foregoing variety; from the same place.
- 1812 Narrow striated Common Salt of this variety, on which account the diverging stria represent large Granular distinct concretions; from Wielizka, in Galicia.

2. NATIVE SAL AMMONIAC.

- 1813 Greyish white Sal Ammoniac in Minute Crystals; from Italy.

III. BORACIC SALTS.

1. TINCAL.

a. *Varieties of the Colour.*

- 1814 Very pale Mountain green passing into greyish white Tincal Crystals; from Thibet.
- 1815 Dark greenish Tincal Crystals, the colour of which is probably darkened by the superficial brownish Clay; from the same place.

b. *Varieties of the External Shape.*

- 1816 Tincal crystallized in perfect Hexahedral Prisms with two broad planes, the crystals are mostly small, but few of a middling size, and all of them coated with a whitish Earth; from the same place.
- 1817 Tincal in similar Prisms, but very broad and low, therefore appearing more tabular; from the same place.

c. *Varieties of the Fracture.*

- 1818 Some broken Tincal Crystals, in which, partly the plain foliated fracture parallel to the lateral planes, partly the translucent cross fracture at right angles to these, is distinct; from the same place.

IV. ALCALINE

IV. ALKALINE SALTS.

I. NATIVE MINERAL ALKALI.

- 1819 Isabella yellow very impure Mineral Alkali; from the shore of the Indian Salt Lakes.

THIRD CLASS.

INFLAMMABLE SUBSTANCES.

I. BITUMINOUS.

1. MINERAL PITCH.

A. Cohesive.

- 1820 Brownish, nearly dark black, Cohesive Mineral Pitch; from Neufchatel in Switzerland.
- 1821 Blackish brown Cohesive Mineral Pitch, bordering on the Semi-compact; from Lorraine.

B. Semi Compact.

- 1822 Dark Clove, nearly blackish brown Semi-compact Mineral Pitch of a very fine Earthy fracture; from the same place.

C. Compact.

- 1823 Dark black compact Mineral Pitch, which internally is perfectly conchoidal and glistening; from Neufchatel.
- 1824 Greyish black ditto, which internally is indeed perfectly conchoidal, but only strongly glimmering; from England.

2. MINERAL COAL.

A. Pitch Coal.

a. Varieties of the Colour.

- 1825 Dark black Pitch Coal, laying in slips in Slaty Coal; from Potschappel near Dresden.
- 1826 Extraordinarily beautiful *Pavonated* Pitch Coal, mixed with Slaty Coal; from Scotland.

b. Varieties of the remaining External Characters.

- 1827 Pitch Coal with a tolerably perfect *conchoidal* fracture, in Slaty Coal; from Potschappel.
- 1828 Pitch Coal of a rather *flat conchoidal* fracture, also in Slaty Coal, with superficial Gypsum; from England.
- 1829 A piece of Pitch Coal, of *small Granular* distinct concretions, on Slaty Coal; from Löbengin in the Saalkreis.

B. Slaty Coal.

a. Varieties of the Colour.

- 1830 *Greyish*, nearly dark black Slaty Coal; from Burg near Dresden.
- 1831 Slaty Coal, variegatedly tarnished with the colour of tempered Steel; from Potschappel.

b. Varieties of the other Characters.

- 1832 A piece of *thick* but *straight* *slaty* Slaty Coal; from Wettin in the Saalkreis.
- 1833 *Thin* *slaty*, very tender, Slaty Coal; from the same place.
- 1834 A *Trapezoidal*, tolerably *rhomboidal* fragment of Slaty Coal; from Silesia.

C. Shining

C. *Shining Coal.*

- 1835 Partly Massive, partly coarsely disseminated and cubically crystallized, Shining Coal in Quartz, with adhering Slaty Coal.

Rem. This specimen is in every respect a very great rarity.

3. *BITUMINOUS WOOD.*A. *Perfect Bituminous Wood.*a. *Varieties of the Colour.*

- 1836 Clove brown perfect Bituminous Wood; from Düben in Saxony.
 1837 Blackish brown Bituminous Wood; from the Upper Lusatia.
 1838 Dark brownish black Bituminous Wood; from the same place.

b. *Varieties of the External Shape.*

- 1839 Massive Bituminous Wood, with Martial Pyrites and mineral Coal, upon adhering Slate Clay; from Bohemia,

c. *Varieties of the Fracture.*

- 1840 Extremely delicate and perfectly parallel, *long fibrous* Bituminous Wood; from Beidersee near Halle in the Saalkreis.
 1841 A little *coarse* and *curved*, but yet tolerably parallel *fibrous* Bituminous Wood; from Upper Lusatia.
 1842 Undulatingly *curved fibrous*, somewhat *knotty* Bituminous Wood; from the same place.
 1843 *Fibrous*, almost *slaty* Bituminous Wood, with inlaying Pitch Coal; from Beuchlitz near Halle.
 1844 Somewhat *entangled fibrous* Bituminous Wood, which

which nearly approaches to the following variety;
from Upper Lusatia.

B. Earthy Bituminous Wood.

- 1845 Dark liver brown, almost Blackish brown Earthy Bituminous Wood, with a coarse grained Earthy fracture; from the Glume near Eisleben.

4. AMBER.

A. White Amber.

- 1846 Yellowish white Amber in Honey yellow ditto.
1847 A rounded piece of white Amber.

B. Yellow Amber.

a. Varieties of the Colour.

- 1848 A piece of Amber of an intermediate colour between *Wine* and *Wax* yellow, which closely borders on the foregoing variety.
1849 *Honey yellow* Amber.
1850 *Hyacinth red* Amber.
1851 *Dark Hyacinth red* Amber.
1852 *Brown*, here and there slightly inclining to *greenish*, Amber.

b. Varieties of the External Shape,

- 1853 A rounded piece of Amber.
1854 Sharp edged pieces of Amber.

c. Varieties of the Fracture.

- 1855 A piece of Amber of a perfectly minute *conchoidal* fracture, in which at the same time small Granular distinct concretions are perceptible.

Rem. All these are from East Prussia.

C. Mellilite.

C. *Mellilite.*

- 1857 Hyacinth red Mellilite crystallized in perfect double Tetrahedral Pyramids; from Artern.

II. SULPHUREOUS.

1. *NATIVE SULPHUR.*a. *Varieties of the Colour.*

- 1858 Native Sulphur of an intermediate colour between Sulphur yellow and Canary green; from Orenburg.
- 1859 Perfect Sulphur yellow Native Sulphur in Calcareous Spar bordering on Granular Limestone, and mixed with Gypsum; from Lorraine.

Rem. This is a very rare appearance.

- 1860 Very pale Sulphur yellow Native Sulphur; from the Bath at Aix-la-Chapelle.

b. *Varieties of the External Shape.*

- 1861 Massive native Sulphur, in Gypsum which is mixed with much fine-grained Lime-stone; from Lorraine.
- 1862 Coarsely disseminated native Sulphur, in grey Gypsum; from Bevicux in Switzerland.
- 1863 Minutely disseminated native Sulphur, in yellowish grey Gypsum; from the Electorate of Hanover.
- 1864 Cellular Native Sulphur almost tabularly crystallized, on Galena and Martial Pyrites; from Puzzuolo near Naples.
- 1865 Native Sulphur forming an overcast on a decomposed sort of Stone much resembling a Porphyry; from Hungary.

a. *Varieties of the Fracture.*

- 1866 Fragments of Native Sulphur, with a minute conchoidal bordering

bordering on the *curved foliated* fracture; from Switzerland.

III. PLOMBAGINOUS.

1. GRAPHITE.

a. Varieties of the Colour.

- 1867 *Iron black* Graphite; from Spain.
 1868 *Brownish black* Graphite, Ironshot in the Clefts; from Dumfries in Scotland.

b. Varieties of the External Shape.

- 1869 *Massive* Graphite in Coppershot indurated Clay and Calcareous Spar; from the same place.

c. Variety of the Fracture.

- 1870 A piece of Graphite whose imperfectly *conchoidal* fracture proves on the whole somewhat *slaty*; from Borradale near Keswick in Cumberland.

FOURTH CLASS.

METALLIC SUBSTANCES.

I. PLATINA.

2, Kirwan, Chap. 2.

1. NATIVE PLATINA.

- 1871 Rather dark Tin white native Platina in roundish grains; from Peru.
 1872 Brighter Tin white Platina in somewhat flatter grains; from the same place.

II. GOLD.

II. G O L D.

1. NATIVE GOLD.

2. Kirwan. Chap. I.

A. Gold-Yellow Native Gold.

a. Varieties of the Colour.

- 1873 Native Gold of a very high gold yellow colour, in Quartz which is mixed with much Martial Pyrites and Galena, upon decomposed Argillite; from Zillerthal in Salzburg.
- 1874 A little lighter gold yellow Native Gold, with some Martial Pyrites in Quartz, with adhering Argillite on both sides; from the Eula in Bohemia.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 1875 Minutely and in some places finely disseminated gold-yellow Native Gold, in a groupe of rhomboidal Felspar Crystals with much antimoniated Silver Ore, upon a very argilliferous Quartz; from the Anna Shaft at Kemniz, in Hungary.
- 1876 Finely disseminated gold-yellow Native Gold, in bluish grey Quartz; from Aedelfors in Sweden.
- 1877 Extremely finely disseminated, partly superficial gold-yellow Native Gold, in compact brown Iron Stone, with adhering Quartz on which some Mica occurs; from Catharinenburg in Siberia.
- 1878 Gold-sand with numerous visible gold grains, among very much magnetic Iron-sand and common Quartz Sand; from the Rhine.
- 1879 Thin superficial gold-yellow Native Gold, on Quartz, with a little Martial Pyrites; from the Eula in Bohemia.



Particular

b. b. Particular External Shapes.

- 1880 Gold-yellow Native Gold, partly in thin *lamella*, partly *prismatically crystallized*, with much Copper Pyrites, and a little Galena in Quartz; from Aedelfors.
- 1881 Partly *cellular*, partly in *thick lamella*, gold-yellow Native Gold, with much Martial Pyrites in Quartz; from Schemniz in Hungary.

c. c. Regular External Figure.

- 1882 Gold-yellow Native Gold crystallized in very distinct, small, perfect hexangular tables, united with extremely numerous minute ones into a thick drusy coating upon Quartz, with adhering decomposed Porphyry; from Saska in Hungary.

B. Brass-Yellow Native Gold.

- 1883 Minutely disseminated brass-yellow Native Gold, with some Martial Pyrites in Quartz; from Schemniz, in Lower Hungary.
- 1884 Partly finely disseminated, partly amorphous brass-yellow Native Gold, with some Galena and Copper Pyrites in Quartz; from the same place.
- 1885 Brass-yellow Native Gold crystallized in very small rectangular tetrahedral Prisms with the extremities bevelled, the bevelling planes corresponding with the lateral planes, with some Martial Pyrites and brown Blende in Quartz; from the same place.

Rem. This is one of the rarest specimens of Native Gold.

C. Grey-Yellow Native Gold.

- 1886 Coarsely disseminated grey-yellow Native Gold, with a large quantity of Galena, some Martial Pyrites, less Blende, and very little Baroselenite, in Quartz,

Quartz, with an adhering somewhat decayed Rock Stone; from Transylvania.

2. GOLD ORE OF NAGAYA.

a. Kirwan, Page 99.

- 1887 Massive Nagaya Gold Ore, of a moderately bright Iron black colour, with some Martial Pyrites in red Ore of Manganese.

Rev. In this all the external characters are very well exhibited,

- 1888 Coarsely disseminated Nagaya Gold Ore, with a large quantity of grey Copper Ore and Auriferous Martial Pyrites, in a mixture of Quartz and red Ore of Manganese; from the same place.
- 1889 Nagaya Gold Ore crystallized in small, rather indistinct hexahedral tables, in the same compound; from the same place.

III. MERCURY.

1. NATIVE MERCURY.

Kirwan, 1st Spec.

- 1890 Fluid Native Mercury in very numerous small globules, in Cinnabar on Hornstone, with adhering Argillite.
- 1891 Fluid Native Mercury in fewer globules, in Cinnabar.
- 1892 Fluid Native Mercury in rather smaller, but very abundant globules, with much Cinnabar on the same matrix.
- 1893 Fluid Native Mercury in very small, pretty numerous globules with Cinnabar, on Quartz Hornstone.
- 1894 Similar Native Mercury, but mixed more discretely through the matrix, upon Hornstone.
- 1895 Native Mercury in very fine, pretty abundant globules, with much Cinnabar, upon Hornstone.

- 1896 Native Mercury, distributed in fewer similar globules through the matrix, with some Martial Pyrites, in micaceous Argillite.
- 1897 Native Mercury, extremely finely, but richly distributed through the matrix, in compact Cinnabar, with Baroselenite on the surface.
- 1898 Native Mercury similarly, but not very richly distributed, with much Martial Pyrites and Cinnabar, in Argillite.
- 1899 Native Mercury, which is evidently somewhat solidified being mixed with a little Silver, therefore making a transition into the following species, in cellular compact brown Ironstone.

Rem. All these specimens are from Deux-Ponts, from the Gottesgabe in Schloßberg, near the small town of Obermoschel.

2. NATURAL AMALGAMA.

Kirwan, 2d Spec.

- 1900 Very thickly superficial Natural Amalgama, almost forming Lamellæ, with hepatic Mercurial Ore upon Calcareous Spar; from the Erzengel, in Deux-Ponts.
- 1901 Thinly superficial Natural Amalgama, on Hornstone which is mixed with Cinnabar, and is somewhat Argilliferous; from the same place.
- 1902 Very thinly and in small quantity superficial Natural Amalgama, upon white and reddish-brown decayed Hornstone, with a little Cinnabar and much adhering yellowish grey indurated Clay; from the same place.

3. CORNEOUS MERCURIAL ORE.

Kirwan. 4th Spec.

- 1903 Corneous Mercurial Ore, crystallized in tetrahedral Prisms bevelled at the extremities, the bevelling planes set on the broad lateral planes, with much Native Mercury in a decomposed Ironshot Argillite; from

from Moschellandsberg in Deux-Ponts, as are likewise the three following specimens.

- 1904 Corneous Mercurial Ore in similar, but much smaller Crystals, in a mixture of Hepatic Mercurial Ore, with some Cinnabar, Lithomarga, blue Copper Ore and Malachite.
- 1905 Corneous Mercurial Ore, in similar, very small, almost minute Crystals, which are accumulated in great numbers in groupes, with Native Mercury in Ironshot Hornstone.
- 1906 Corneous Mercurial Ore similarly crystallized, but all the Crystals are minute and accumulated in small drusy films, with Cinnabar in Ironshot Hornstone.

4. HEPATIC MERCURIAL ORE.

Kirwan. 3d Spu.

A. Compact.

- 1907 Perfectly dark Cochineal-red compact Hepatic Mercurial Ore; from Idria, as are all the following specimens to 1913.
- 1908 A little brighter Cochineal-red Hepatic Mercurial Ore, with a little Native Mercury and adhering Slate-clay.
- 1909 Massive compact Hepatic Mercurial Ore, in Slate-clay.
- 1910 Compact Hepatic Mercurial Ore, mixed with the so called Coral Ore.
- 1911 Compact Hepatic Mercurial Ore, of an imperfectly even fracture.
- 1912 A piece of compact Hepatic Mercurial Ore, whose fracture on the whole, approaches very near to the Slaty, with Slate-clay on the surface.

B. Slaty.

- 1913 High Cochineal-red slaty Hepatic Mercurial Ore, whose fracture approaches very nearly to the foliated,

5. CINNABAR.

3. CINNABAR.

A. Common Cinnabar.

Kirwan, 2d Family, 5th Spec.

a. Varieties of the Colour.

- 1914 *Very dark Cochineal-red* Cinnabar, with some Lithomarga; from the Palatinate.
- 1915 *High Cochineal-red* Cinnabar, with much Native Mercury in Hornstone; from Moshellandsberg in Deux-Ponts.
- 1916 *Rather lighter Cochineal-red* common Cinnabar, with adhering Argillite; from the same place.
- 1917 *Still lighter Cochineal-red* common Cinnabar, in black Hornstone; from the same place.
- 1918 Common Cinnabar of an intermediate colour between *Cochineal* and *Carmines-red*, with Martial Pyrites and Galena; from Cremniz in Lower Hungary.

Rem. This is a transition into the following variety.

- 1919 *Dark crimson-red* common Cinnabar, in slaty Clay; from Idria.
- 1920 Common Cinnabar whose colour is intermediate between *Carmines* and *Scarlet-red*, in a compound of Hornstone, compact brown Ironstone and some Baroselenite; from the Gottesgabe, near Obermoschel in Deux-Ponts.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 1921 *Massive* common Cinnabar, with Martial Pyrites and bright red Cinnabar in a decomposed Quartz Rockstone; from Hungary.
- 1922 *Coarsely disseminated* Common Cinnabar, in Quartz, with much crystallized Martial Pyrites and with adhering Argillite on both sides; from the same place.
- 1923 *Minutely disseminated* common Cinnabar, in decomposed Porphyry; from the same place.
- 1924 *Still more minutely disseminated* Common Cinnabar, in a somewhat

- somewhat Bituminous Slate Clay which approaches very nearly to Bituminous Slate; from Idria.
- 1925 *Very minutely disseminated* Common Cinnabar, in Quartz with adhering Argillite; from Hartenstein near Zwickau.
- 1926 *Finely disseminated* Common Cinnabar in Sandstone, with some inlaying petrifications; from Idria.
- 1927 *Extremely finely disseminated*, scarce longer visible, Common Cinnabar, in Ironshot Jasper; from Deux-Ponts.
- 1928 *Thickly superficial* Common Cinnabar, on Hornstone; from the same place.
- 1929 *Thinly superficial* Common Cinnabar, upon Bituminous Slate Clay; from Idria.
- 1930 *Very-thinly superficial* Common Cinnabar, upon very compact Slate Clay which approaches very near to the Bituminous Slate, at the same time an extraordinary quantity of Cinnabar is extremely finely intermixed in it; from the same place.

b. b. The particular External Shape,

- 1931 Common Cinnabar, in *veins*, with the same, *Massive*, in Argillite; from Salzburg.
- 1932 *Amorphous* Common Cinnabar, with much Quartz and Martial Pyrites, as also some Siderocalcite and Sparry Iron Ore; from Hungary.

c. c. Regular External Figures.

a. Pyramids.

- 1933 Common Cinnabar crystallized in very small double Tetrahedral Pyramids, with some *Massive* ditto, upon Hornstone; from Deux-Ponts.
- 1934 An entire groupe of rather smaller, but through the Microscope tolerably distinct, similar Pyramids of Common Cinnabar, with some bright red ditto and Martial Pyrites intermixed in Hornstone; from the same place.
- 1935 Common Cinnabar crystallized in still smaller Pyramids, partly inhering upon one another, forming thin drusy films in Ironshot Quartz; from the same place.

1936 Common

- 1936 Common Cinnabar crystallized in minute, similar, solitary Crystals, strewed superficially with bright red ditto and Native Mercury upon Hornstone; from the same place.

β. Lenses.

- 1937 Lenticularly crystallized Common Cinnabar, with some bright red ditto, on Slate Clay which seems to be mixed with Hornstone; from the same place.

Rem. These Lenticular Crystals are properly only the accumulated Crystals of the foregoing Pyramidal figure.

γ. Prisms.

- 1938 Cinnabar crystallized in Trihædral Pyramids acuminated by three planes, the Crystals are mostly acicular and very small; a few small, with Massive ditto, in a decomposed Slaty Rockstone; from Mörsfeld in the Palatinate.
- 1939 Cinnabar crystallized in similar, but somewhat shorter Prisms, forming a small groupe between Massive ditto, which is mixed with Calcareous Spar, and with decomposed Argillite adhering to both sides; from Obermoschel, in Deux-Ponts.
- 1940 Common Cinnabar crystallized in minute, similar Prisms, which form thin drusy films, upon Hornstone; from Deux-Ponts.
- 1941 Common Cinnabar crystallized in extremely minute, similar Prisms, which in some places are entirely blended together into thin Lamellæ, in the same Hornstone; from the same place.

c. Varieties of the Fracture.

- 1942 A piece of Common Cinnabar with a tolerably distinct *plain foliated* fracture, in compact brown Ironstone which is mixed with some Calcareous Spar; from the Gottesgabe, near Obermoschel.

Rem. This foliated fracture probably originates from the intimate admixture of Calcareous Spar.

1943 Common

- 1943 Common Cinnabar, whose *foliated* fracture is indistinct, on Argilliferous Hornstone; from Deux-Ponts.
- 1944 A piece of Common Cinnabar, whose *foliated* fracture approaches extremely to the *compact*, mixed with some Copper Pyrites; from Nassau.
- 1945 Common Cinnabar of an imperfectly *splintery* fracture, mixed with a large proportion of foliated ditto, on Hornstone; from Deux-Ponts.

d. *Varieties of the Distinct Concretions.*

- 1946 Common Cinnabar of *small Granular* distinct concretions, on Hornstone, with adhering Argillite; from the same place.
- 1947 Common Cinnabar of *fine Granular* distinct concretions; from the same place.
- 1948 A piece of Common Cinnabar of *very fine Granular* distinct concretions, with adhering Argillite; from the same place.

Rem. This variety is very rare in general, but especially in Deux-Ponts.

- 1949 Common Cinnabar of *extremely fine Granular* distinct concretions, from whence, the whole, at the first glance, has a nearly compact appearance, since only here and there, small shining particles arrest the eye, with a little superficial Clay; from the same place.

B. *Bright Red Cinnabar.*

a. *Varieties of the Colour.*

- 1950 A piece of Bright Red Cinnabar of an intermediate colour between *Scarlet* and *Crimson red*, on Calcareous Spar; from the Palatinate.
- 1951 A little darker *Scarlet red* Cinnabar, on compact brown Ironstone; from Deux-Ponts.
- 1952 *Intense Scarlet red* Cinnabar with Common Cinnabar, on Quartz; from the same place.

F f

1953 *Perfectly*

- 1953 *Perfectly Scarlet red Cinnabar on Martial Pyrites, upon and in compact brown Ironstone, which is coated with Ochre; from the same place.*
- 1954 *A little brighter, very beautiful Scarlet red Cinnabar, on Ironshot Hornstone; from the same place.*
- 1955 *Bright-red Cinnabar of a colour which from the Scarlet red inclines somewhat into Aurora red and Orange yellow, upon Indurated Clay; from the same place.*
- 1956 *Bright-red Cinnabar, inclining a little more into Aurora red, on Striated Pyrites; from the same place.*
- 1957 *Bright-red Cinnabar from the Morrore red inclining a little to bluish, in an Argillite decomposed to Indurated Clay; from Wolfstein, in the Palatinate.*

b. Varieties of the External Shape.

- 1958 *Massive Bright-red Cinnabar, in the same Argillaceous matrix; from the same place.*
- 1959 *Coarsely disseminated Bright-red Cinnabar, with Martial Pyrites, in Argillite; from Hartenstein near Zwickau.*
- 1960 *Bright-red Cinnabar, forming a moderately thick coating on Ironshot Quartz; from the Palatinate.*
- 1961 *Bright-red Cinnabar, in a thinner coating on Striated Pyrites, which is mixed with Hepatic Mercurial Ore, to which a little Baroselenite adheres; from Deux-Ponts.*
- 1962 *Bright-red Cinnabar in veins through Indurated Clay, with a little intermixed Baroselenite and superficial compact brown Ironstone; from the same place.*
- 1963 *Bright-red Cinnabar in minute, indistinct Crystals, coating the cells of an Ironshot Quartz; from the Palatinate.*

IV. SILVER

IV. SILVER.

1. NATIVE SILVER.

Kirwan 1st Spec.

a. Varieties of the Colour.

- 1964 *Perfectly Silvery white* Native Silver, with some which is tarnished black, in fine splintery Quartz; from Schneeberg.
- 1965 Native Silver slightly tarnished *yellow*, with Native Bismuth in Hornstone which is mixed with Flint; from Johangeorgenstadt.
- 1966 Somewhat *yellowish brown* tarnished Dendritic Native Silver; from the Himmelsfurst near Freiberg.

b. Varieties of the external Shape.

a. a. The Common External Shape.

- 1967 *Massive* Native Silver, with Arsenical Silver in Baroselenite; from the Sophia near Wittichen in Furstenberg.
- 1968 *Coarsely disseminated* Native Silver with Arsenical Silver, in a compound of Calcareous Spar and some Galena; from the Wenzelswerk at the same place.
- 1969 *Thickly superficial* Native Silver, with some filiform ditto, and Martial Pyrites upon Quartz, with adhering Argillite; from the Priest and Levite at Schneeberg.
- 1970 *Thinly superficial* Native Silver, on Quartz which is mixed with Hornblende and some Galena; from Kongsberg in Norway.
- 1971 A thick *dentiform* Piece of Native Silver, with some Vitreous Silver Ore, rising out of Calcareous Spar; from Schneeberg.
- 1972 *Dentiform* Native Silver, with a large quantity of Massive ditto, as also Vitreous Silver Ore, upon
F f 2 and

- and in Calcareous Spar; from the Priest and Levite at Schneeberg.
- 1973 *Slender dentiform* Native Silver with filiform ditto, and coated with Vitreous Silver Ore, in Calcareous Spar, upon Siderocalcite; from the same place.
- 1974 *Filiform* Native Silver, coated with Vitreous Silver Ore, on Calcareous Spar, which is mixed with a large quantity of Siderocalcite and Martial Pyrites; from the same place.
- 1975 *Rather shorter filiform* Native Silver, with Vitreous Silver Ore and very little Calcareous Spar, on Martial Pyrites; from the same place.
- 1976 *Slender and short filiform* Native Silver, with some Massive ditto in Calcareous Spar, which is mixed with Martial Pyrites; from the same place.
- 1977 *Very slender filiform* Native Silver, in Calcareous Spar, with an inlaying pale bluish grey Crystal of Apatite; from the same place.
- 1978 *Partly filiform, partly capillary* Native Silver, in dull grey Cobalt Ore, with decayed red Cobalt Ore laying on the surface; from Schneeberg.
- 1979 *Capillary, in some places pretty fine*, Native Silver, in Quartz which is mixed with Martial Pyrites, with a little adhering Argillite; from the Priest and Levite at Schneeberg.
- 1980 *Rather slender, and somewhat shorter capillary* Native Silver, mixed with filiform ditto; as also with a large quantity of crystallized Vitreous Silver Ore, upon a groupe of Baroselenite; from the Young Fabian at Marienberg.
- 1981 *Delicate and long capillary* Native Silver, on a groupe of Vitreous Silver Ore, with some adhering dull grey Cobalt Ore; from Schneeberg.
- 1982 *Very slender Capillary* Native Silver, forming a thick rind upon bright white Cobalt Ore, with adhering Quartz and Argillite; from the same place.
- 1983 *Very short Capillary* Native Silver, with superficial Vitreous Silver Ore, upon a large quantity of Galena which is mixed with much brown Blende and a little Native Bismuth, in and upon Jasp'agate, which is mixed with massive and drusy Quartz, and to

- to which some Schistose Mica adheres; from Johangeorgenstadt.
- 1984 Native Silver in *thin Lamella*, on Calcareous Spar; from Wittichen in Fürstenberg.
- 1985 *Amorphous* Native Silver, with filiform ditto; as also mixed with some Iron Ochre and a little indurated Clay; from the Catharina at Raschau.
- 1986 Native Silver with *Pyramidal impressions*, partly also *Amorphous* and *Filiform*, in and upon Quartz; from Schneeberg.

β. b. The regular External Shape,

α. The Cube,

- 1987 Native Silver crystallized in indistinct Cubes, partly accumulated in sprigs, in Quartz which is mixed with Martial Pyrites; from Kongsberg in Norway.
- 1988 Native Silver crystallized in perfect, very small, almost minute Cubes, pyramidally accumulated, on Baroselenite, with superficial red Silver Ore; from the Wenzelswerk, near Wittichen in Fürstenberg.
- 1989 Native Silver crystallized in minute perfect cubes, rather irregularly heaped on one another, in Baroselenite; from the Himmelsfürst, near Freiberg.
- 1990 Native Silver crystallized in similar perfect cubes, very beautifully dendritically aggregated, mixed with Baroselenite; from the Himmelsfürst.

β. Pyramids,

α. α. With respect to the Connection of the Crystals.

- 1991 Native Silver crystallized in double tetrahædral Pyramids, which are implanted one on the other almost singly, but partly also, they cohere together, with brown Blende and a little red Silver Ore, in Lamellar Baroselenite; from the Himmelsfürst.

1992 Native

- 1992 Native Silver crystallized in very distinct similar tetrahedral Pyramids, implanted upon one another in groupes, with superficial ditto upon Quartz and Hornstone; from Johangeorgenstadt.
- 1993 Native Silver crystallized in the same manner, accumulated in rows, in Lamellar Baroselenite, with adhering decomposed Gneiss; from the Himmelsfürst.
- 1994 Native Silver crystallized in the same manner, accumulated in rows, in a decomposed Argillaceous Stone; from Wittichen in Fürstenberg.
- 1995 Native Silver crystallized in the same manner, accumulated first in rows, and afterwards imperfectly dendritically, in Baroselenite which is mixed with much vitreous Silver Ore, with adhering Quartz and Argillite; from Schneeberg.
- 1996 Native Silver crystallized in the same manner, partly reticulated, and partly filiformly accumulated, in Baroselenite; from the Principality of Fürstenberg.
- 1997 Native Silver crystallized in the same manner, partly scopiformly, partly reticularly accumulated, with some vitreous Silver Ore, in Lamellar Baroselenite; from Schneeberg.
- 1998 Crystallized Native Silver, accumulated in small arborizations, partly in branches, with a little Calcareous Spar; from the Himmelsfürst.
- 1999 Similarly crystallized Native Silver, aggregated into a complete tree, with Calcareous Spar.
- 2000 Similarly crystallized Native Silver, accumulated in very distinct plumiform reticulations, with Baroselenite and Hornstone; from Schneeberg.
- 2001 Similarly crystallized Native Silver accumulated in very delicate reticulations in Flint, on which is some superficial vitreous Silver Ore, and which is mixed with Quartz and dull grey Cobalt Ore; from Schneeberg.
- 2002 Native Silver crystallized in the same manner, accumulated amorphously, on Galena; from Freiberg.

B. B. With respect to the Size.

- 2003 Native Silver crystallized in small, partly very small similar Pyramids, in Baroselenite; from Fürstenberg.
- 2004 Native

- 2004 Native Silver crystallized in very small similar Pyramids, with superficial vitreous Silver Ore, upon Lamellar Baroselenite; from the Sophia at Wittichen in Fürstenberg.
- 2005 Native Silver crystallized in minute similar Pyramids, in Quartz; from Johangeorgenstadt.

c. Varieties of the Fracture.

- 2006 Native Silver, in which the *hackly fracture* is very well exhibited, with Kupfernickel and dull grey Cobalt Ore, in Quartz; from Schneeberg.

2. ARSENICATED NATIVE SILVER.

Kirwan, 5th Family, 1st Spec.

- 2007 Perfectly Tin-white arsenicated Native Silver, with Native Silver in Calcareous Spar; from the Wenzelswerk near Wittichen in the Principality of Fürstenberg.
- 2008 Somewhat Steel-grey, tarnished, arsenicated Native Silver, with some Native Silver, in Calcareous Spar and adhering Quartz, in which Martial Pyrites are disseminated; from the same place.
- 2009 Massive, and coarsely disseminated, arsenicated Native Silver, with much brown Blende, in Calcareous Spar; from the Hartz.
- 2010 Minutely disseminated arsenicated Native Silver, with some red Silver Ore, and antimoniated Silver Ore, in Calcareous Spar which is traversed by a slip of Argillite; from the George Wilhelm, at Andreasberg.

3. CORNEOUS SILVER ORE.

Kirwan, 3d Spec.

- 2011 Blackish brown Corneous Silver Ore, with a little indurated Clay.
- 2012 Massive Corneous Silver Ore, but here and there crystallized

crystallized in very small cubes which are strewed over singly, upon Gneiss, these three specimens are all from the Gotthelf Schaller at Johangeorgenstadt.

- 2013 Perfectly pearl-grey corneous Silver Ore, crystallized in very small cubes, upon decomposed Iron-shot Gneiss.

4. SOOTY SILVER ORE.

Kirwan, 6th Spec.

- 2014 Coarsely disseminated Sooty Silver Ore, strongly resembling Corneous Silver Ore, and also mixed with it, on Ironshot Quartz and a little Gneiss; from the same place.
- 2015 Sooty Silver Ore, forming a thin coating, with filiform Native Silver, in hepatic Pyrites, with a small quantity of a Rock Stone adhering to both sides; from Annaberg.

5. VITREOUS SILVER ORE.

Kirwan, 4th Spec.

a. Varieties of the Colour.

- 2016 Vitreous Silver Ore of a moderately dark lead grey colour, slightly inclining to blackish, on Argillite, with Quartz and Hornstone; from Schneeberg.
- 2017 Vitreous Silver Ore, variegatedly tarnished with the colour of tempered Steel, with Quartz and the same adhering sort of Stone; from the same place.
- 2018 Thickly superficial vitreous Silver Ore, which in some places is slightly pavonated, with Native Silver, upon Quartz, and traversing earthy flint; from Rappolt at Schneeberg.

b. Varieties

b. *Varieties of the External Shape.*a. a. *The Common External Shape.*

- 2019 *Massive* Vitreous Silver Ore, mixed with some crystallized ditto, and also Galena, with decomposed Argillite adhering to both sides; from Schneeberg.
- 2020 *Coarsely disseminated* Vitreous Silver Ore in Argentine, with a little adhering indurated Gneiss; from Freiberg.
- 2021 *Thinly superficial* Vitreous Silver Ore, upon Jasp'agate which is mixed with common Jasper, and has Quartz on both sides; from Johangeorgenstadt.
- 2022 *Thickly superficial* Vitreous Silver Ore, upon red common Felspar mixed with some Quartz, and with adhering Gneiss on both sides; from Freiberg.
- 2023 *Very thickly superficial* Vitreous Silver Ore, with some Native Silver in Quartz; from the Priest and Levite at Schneeberg.

b. b. *The Particular External Shape.*

- 2024 *Small dentiform and capillary* Vitreous Silver Ore, with some little adhering Sparry Iron Ore.
- 2025a *Filiform* Vitreous Silver Ore, with similar Native Silver, in amorphous Vitreous Silver Ore.
- 2025b Vitreous Silver Ore with *cubic impressions*, and capillary Native Silver laying on the surface; from Schneeberg.
- 2026 Vitreous Silver Ore forming *veins*, in Hornstone; from Johangeorgenstadt.
- 2027 *Ramose* Vitreous Silver Ore; from the Morgenstern, near Freiberg.
- 2028 *Imperfectly Ramose* Vitreous Silver Ore, with very little Quartz; from the Himmelsfürst, near Freiberg.
- 2029 *Amorphous* Vitreous Silver Ore, with superficial Clay; from Annaberg.
- 2030 *Amorphous* Vitreous Silver Ore, which shews on one of the sides, that it formerly possessed a crystalline form, with a little Sparry Iron Ore and adhering decomposed Gneiss; from the Himmelsfürst.

*s. c. The Regular External Shape.**a. Prisms.**a. a. Bevilled.*

- 2031 Vitreous Silver Ore crystallized in small compressed hexahedral Prisms, obtusely bevilled at their extremities, and the angles of the acute lateral edges are truncated; from Freiberg.

β. β. Acuminated.

- 2032 Vitreous Silver Ore crystallized in similar Prisms acuminated by four Planes, the Crystals are small, yet tolerably distinct, with some Iron Ochre underneath; from Johangeorgenstadt.
- 2033 Similarly crystallized Vitreous Silver Ore, but more indistinct, as the Crystals are aggregated into bud-like groupings, with much red Silver Ore and a little Iron Ochre; from the same place.

β. Cubes.

- 2034 Vitreous Silver Ore crystallized in small perfect cubes extremely distinct, with a little Native Silver and Calcareous Spar; from Schneeberg.
- 2035 Vitreous Silver Ore, crystallized in very small similar cubes, with a little pyramidal Calcareous Spar; from the same place.
- 2036 Vitreous Silver Ore, exhibiting the intermediate crystallization between the Cube and Octohædron, the Crystals are implanted one upon another, and small, in Calcareous Spar; from the same place.
- 2037 Vitreous Silver Ore, forming small, similar, rather more indistinct, intermediate Crystals, with much Native Silver, as also Martial Pyrites and some Calcareous Spar, upon Quartz, with adhering Hornstone; from the same place.

γ. Double

γ. *Double Tetrahedral Pyramids.*

- 2038 Vitreous Silver Ore crystallized in small, variegatedly tarnished, very distinct, Octohædrons, with the angles truncated, with a little red Silver Ore and decomposed hepatic Pyrites; from Johangeorgenstadt.
- 2039 Vitreous Silver Ore crystallized in the same manner, but very thickly accumulated, on Massive ditto, with very little decomposed Gneiss; from the Himmelsfürst.
- 2040 Vitreous Silver Ore crystallized in perfect Octohædrons, partly implanted discretely, and partly attached to one another, with bright white Cobalt Ore in Quartz; from Annaberg.
- 2041 Vitreous Silver Ore crystallized in the same manner, confusedly connected together, with a little Martial Pyrites upon Quartz; from Schneeberg.
- 2042 Similarly crystallized Vitreous Silver Ore accumulated into a groupe, with crystallized Quartz and Calcareous Spar, some indurated Clay, as also decayed Hepatic Pyrites intermixed; from the Priest and Levite at Schneeberg.
- 2043 Vitreous Silver Ore crystallized in the same manner, forming bud-like accumulations, with a very little Sparry Iron Ore underneath; from Freiberg.
- 2044 Similarly crystallized Vitreous Silver Ore, partly in dendritic and partly Arbusiform accumulations, with a little Siderocalcite and Calcareous Spar, as also Native Silver; from the Himmelsfürst.
- 2045 Vitreous Silver Ore crystallized in similar Pyramids, amorphously accumulated; from Johangeorgenstadt.
- 2046 Vitreous Silver crystallized in somewhat flat compressed, small, similar Pyramids, forming a groupe in Quartz, which is mixed with some Galena, with adhering Gneiss; from Freiberg.
- 2047 Vitreous Silver Ore crystallized in very small similar pyramids, with a groupe of Sparry Iron Ore Crystals, upon very Quartz decayed Gneiss; from the same place.

- 2048 Vitreous Silver Ore crystallized in very small, nearly minute similar pyramids, upon and in Galena, with Quartz and adhering Gneiss; from the Silver Kammer at Johangeorgenstadt.
- 2049 Vitreous Silver Ore crystallized in minute similar Pyramids, thickly aggregated in Calcareous Spar (Tyger Ore); from Freiberg.

6. ANTIMONIATED SILVER ORE.

Kirwan, 71b Spec.

a. Varieties of the Colour.

- 2050 Massive Antimoniated Silver Ore of an iron black colour, inclining to lead grey, with some Galena, black Blende and Martial Pyrites, in a compound of a large quantity of Quartz and some Siderocalcite, on which is some superficial red Silver Ore and Martial Pyrites; from the Gelobtenland near Freiberg.
- 2051 A piece of Antimoniated Silver Ore of an iron black colour, strongly passing into lead-grey, mixed with some Galena and Quartz; from Freiberg.

b. Varieties of the External Shape.

a. a. The Common.

- 2052 Massive Antimoniated Silver Ore, with a large quantity of Galena, as also some Siderocalcite and Quartz, upon Gneiss; from the Gelobtenland near Freiberg.
- 2053 Coarsely disseminated Antimoniated Silver Ore, with some Galena and much black Blende, as also crystallized Antimoniated Silver Ore, in Siderocalcite; Freiberg.
- 2054 Minutely disseminated Antimoniated Silver Ore, with Native Silver and rather indistinct Mica, in Quartz; from Schneeberg.

b. b. The

*B. B. The Regular External Shape.**a. Prisms.*

- 2055 Antimoniated Silver Ore crystallized in perfect Hexhædral Prisms of middling size, acuminated by four Planes, and the Apex then truncated; from Freiberg.
- 2056 Antimoniated Silver Ore crystallized in similar Prisms adhering together, with rather convex acuminating Planes, upon cellular Martial Pyrites; from the same place.
- 2057 Antimoniated Silver Ore crystallized in rather lower, perfect, Hexhædral Prisms, partly small, partly very small, with much Native Silver in Quartz; from Schneeberg.

b. Tabular Crystals.

- 2058 Antimoniated Silver Ore crystallized in perfect, rather thick, Hexhædral tables, in Martial Pyrites mixed with some Copper Pyrites and black Blende, in which also some Quartz occurs; from Freiberg.
- 2059 Antimoniated Silver Ore crystallized in similar tables, cellularly intersecting each other, upon and adhering to Prismatic red Silver Ore, on a compound of much Martial Pyrites and Quartz; as also some black Blende with adhering Gneiss underneath; from Freiberg.
- 2060 Antimoniated Silver Ore crystallized in thinner, similar tables, but here and there associated with thicker ditto, upon Quartz which is mixed with red Silver Ore and Martial Pyrites; from the same place.
- 2061 Antimoniated Silver Ore crystallized in very thin, similar tables, with a small groupe and crystallized brown Blende laying on the surface; from Hungary.
- 2062 Antimoniated Silver Ore crystallized in similar Hexhædral

Hexhædral tables with somewhat convex planes, and also of inferior size, with Vitreous Silver Ore and much Quartz, in a lenticular, rather Ironshot Calcareous Spar Groupe; from Joachimstahl in Bohemia.

γ. *Rhombs.*

- 2063 Antimoniated Silver Ore crystallized in very small, rather indistinct Rhombs, with Galena and much Martial Pyrites, as also some red Silver Ore, in decomposed Siderocalcite; from the Marcus Röhling near Annaberg.
- 2064 Antimoniated Silver Ore crystallized in minute, similar Rhombs which are drusically aggregated in a Galena groupe, on Quartz which is mixed with much Siderocalcite, some Massive Antimoniated Silver Ore, as also black Blende and Martial Pyrites; from the Neujahrsmaffen at Johngeorgenstadt.

c. *Varieties of the Fracture.*

- 2065 A piece of Antimoniated Silver Ore, in which the minute conchoidal fracture passing into the uneven, is tolerably distinct, in Galena which is mixed with some Quartz and Siderocalcite; from the Gelobtenland near Freiberg.

7. *RED SILVER ORE.*

Kirwan, 10th Spec.

A. *Dark red.*

a. *Varieties of the Colour.*

- 2066 Almost completely Lead grey, extremely little inclining to Cochineal-red, Dark red Silver Ore, with much Galena, Siderocalcite and Martial Pyrites; as also adhering

- adhering Gneifs; from the Himmelsfürst near Freiberg.
- 2067 Dark red Silver Ore passing a little *more* into *Cochineal-red*, upon decayed Gneifs with much adhering Baroselenite; from the same place.
- 2068 *Dark Cochineal-red* Silver Ore, in a compound of very much Martial Pyrites, a little grey Cobalt Ore, some Galena, Antimoniated Silver Ore, Quartz, and Siderocalcite; from the Priest and Levite, at Schneeberg.
- 2069 A little *brighter Cochineal-red*, Dark red Silver Ore, in Quartz, with some Martial Pyrites and adhering Argillite; from the same place.
- 2070 *Perfectly Cochineal-red*, Dark red Silver Ore, with a somewhat Earthy Quartz; from the same place.
- 2071 *Cochineal-red*, Dark red Silver Ore, passing pretty strongly into *Crimson red* (a transition into the following variety) with Martial Pyrites, in Calcareous Spar which is mixed with Siderocalcite; from the Hartz.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2072 *Massive* Dark red Silver Ore in Calcareous Spar; from Schneeberg.
- 2073 *Coarsely disseminated*, partly also *Massive* Dark red Silver Ore, in a compound of some Calcareous Spar, Siderocalcite and Copper Pyrites; from the same place.
- 2074^a *Minutely disseminated*, partly also *thinly superficial*, Dark red Silver Ore, in Quartz which is mixed with a pretty large quantity of Copper Pyrites; from Hungary.

b. b. The Particular External Shape.

- 2074^b *A plate* of Dark red Silver Ore, on drusy Quartz, in which crystallized sparry Iron Ore occurs; from Schneeberg.

2075 *Inhering*

- 2075 *Inhering Granular* Dark red Silver Ore, with a little Massive ditto, on a Quartz groupe, and with adhering decomposed Argillite; from Braunsdorf near Freiberg.

c. c. The Regular External Shape.

a. Prisms.

a. a. Compleat.

- 2076 Dark red Silver Ore crystallized in perfect, tolerably isogonal, small Hexhædral Prisms, which intersect, and are implanted upon one another, with the lateral planes extremely delicately streaked; from Johangeorgenstadt.
- 2077 Dark red Silver Ore crystallized in similar, rather longer Prisms, deeply streaked longitudinally on the lateral planes, with a little Calcareous Spar and Mountain green underneath; from Schneeberg.

β. β. Acuminated.

- 2078 Dark red Silver Ore crystallized in Hexhædral Prisms acuminate by three planes, partly of a middling size, partly small, adhering upon, and through one another, with a very little decomposed sparry Iron Ore; from Annaberg.
- 2079 Similarly, but much smaller Prismatic crystallized Dark red Silver Ore in Quartz, with Calcareous Spar Crystals on the surface; from Hungary.
- 2080 Dark red Silver Ore crystallized in the same manner, but with unequal sided acuminations; from the Himmelsfürst.
- 2081 Dark red Silver Ore crystallized in small Hexhædral Prisms doubly acuminate, first acutely with six planes, and afterwards by three, in a Quartz groupe; from Braunsdorf.
- 2082 Dark red Silver Ore crystallized in minute similar Prisms, with a little Copper Pyrites, in Quartz; from Kremnitz in Lower Hungary.

c. Varieties

c. *Varieties of the Fracture.*

- 2083 Dark red Silver Ore of an *uneven* approaching to to the *curved foliated* fracture, with drusy Quartz on Gneiss; from Marienberg.
- 2084 Dark red Silver Ore of a *minute conchoidal* fracture, with Siderocalcite and Calcareous Spar in Quartz; from the Hartz.
- 2085 Massive Dark red Silver Ore of an almost *perfectly conchoidal* fracture, with a Calcareous Spar Groupe upon Quartz, on which is some superficial Red Silver Ore; from Joachimstahl.

d. *Varieties of the Transparency.*

- 2086 *Strongly translucent* Dark red Silver Ore, partly Massive, partly in Crystals, with Galena and a Calcareous Spar Groupe, in Quartz upon Gneiss; from Freiberg.
- 2087 *Perfectly Opaque* crystallized Dark red Silver Ore, with much radiated Martial Pyrites and a Calcareous Spar Groupe, upon Quartz; from Schneeberg.

B. *Light red Silver Ore.*a. *Varieties of the Colour.*

- 2088 Light red Silver Ore of an intermediate colour between *Blood* and *Cochineal-red*, with Hepatic Pyrites; from Johangeorgenstadt.
- 2089 A piece of Red Silver Ore of the same colour, but a little more inclining to *Lead grey*, with Baroselenite and superficial Clay; from Marienberg.
- 2090 Rather *darker*, still more strongly passing into *Lead grey*, Light red Silver Ore, with Hepatic Pyrites in Calcareous Spar; from Schneeberg.

b. *Varieties of the External Shape.*a. a. *The Common.*

- 2091 Partly *Massive*, partly *coarsely disseminated*, Light red Silver Ore, in Calcareous Spar; from Schneeberg.
- 2092 *Minutely disseminated* Light red Silver Ore, with the same crystallized in Quartz; from Freiberg.
- 2093 *Extremely thin superficial* Light red Silver Ore, upon Lamellar Baroselenite which is mixed with much Fluor Spar, and with an adhering decomposed Rock-stone; from Freiberg.
- 2094 A piece of *thick superficial* Light red Silver Ore, with the same crystallized upon a compound of Calcareous Spar, Siderocalcite, much Blende and some Galena, as also Martial Pyrites in Quartz; from Freiberg.
- 2095 *Moderately strong* superficial Light red Silver Ore, with Martial Pyrites upon Gneiss; from Freiberg.
- 2096 *Very strong* superficial Light red Silver Ore, upon Native Arsenic, with much Galena and crystallized Red Silver Ore intermixed, and much Siderocalcite adhering; from the Hartz.

b. b. *The Regular External Shape.*a. *Prisms.*

- 2097 Light red Silver Ore crystallized in hexahedral Prisms acuminate by three planes, of middling size, in cellular Quartz, with some Siderocalcite and massive Red Silver Ore intermixed; from the same place.
- 2098 Variegatedly tarnished Light red Silver Ore crystallized in the same manner, but small, with a little Calcareous Spar; from Schneeberg.
- 2099 Similarly crystallized Light red Silver Ore, the crystals connected irregularly in a groupe, with much adhering hepatic Pyrites; from Johangeorgenstadt.

- 2100 Red Silver Ore crystallized in similar, small, almost very small prisms, on white Cobalt Ore, with adhering Gneiss; from Annaberg.
- 2101 Light red Silver Ore crystallized in similar Prisms, prismatically connected together, in white Cobalt Ore, which is mixed with much Siderocalcite and massive red Silver Ore, as also with superficial Kupfernickel; from Annaberg.
- 2102 Light red Silver Ore crystallized in very small, almost minute similar transparent Prisms, in hepatic Pyrites, with white Cobalt Ore; from Johangeorgenstadt.
- 2103 Light red Silver Ore crystallized in similar Prisms rather obtusely acuminate by six planes, and small, with some Calcareous Spar upon lamellar Galena which is mixed with compact Galena, to which Argillite adheres; from the Hartz.
- 2104 Light red Silver Ore crystallized in the same manner, but the Prisms are more obtusely acuminate and lower, in Siderocalcite, with some superficial red Silver Ore; from Schneeberg.

β. Pyramids.

- 2105 Light red Silver Ore crystallized in very acute, acicular, hexædral Pyramids, the apex a second time acuminate by three planes, upon Galena which is mixed with much white Cobalt Ore and Martial Pyrites, with adhering Baroselenite; from Marienberg.
- 2106 Red Silver Ore crystallized in similar, but thicker Pyramids, in a groupe of Martial Pyrites, with massive red Silver Ore and decayed Gneiss; from Johangeorgenstadt.
- 2107 Light red Silver Ore crystallized in still lower Pyramids, partly inhering singly upon Gneiss, with a compound of Galena, hepatic Pyrites and a talcose decomposed Stone; from Freiberg.
- 2108 Light red Silver Ore crystallized in similar slender Pyramids, partly adhering together by their lateral planes, in the same compound; from the same place.

- 2109 Light red Silver Ore crystallized in similar Pyramids rather irregularly connected through one another, upon a compound of Hornstone, Jasper, and much Galena, with adhering decomposed Gneiss; from Freiberg.
- 2110 Similarly crystallized, partly scopiformly aggregated Light red Silver Ore, with massive ditto in Quartz, in which very much Martial Pyrites, some Copper Pyrites and Galena are intermixed; from Braunsdorf.
- 2111 Light red Silver Ore crystallized in similar Pyramids stellularly aggregated, with cellular Quartz and some adhering Gneiss; from Freiberg.

c. Varieties of the Fracture.

- 2112 Massive Light red Silver Ore with a *small grained uneven* fracture, in Baroselenite; from the Himmelsfürst, near Freiberg.
- 2113 Massive light red Silver Ore with a *foliated* fracture, which proves only slightly *curved*, in Calcareous Spar; from Schneeberg.

d. Varieties of the Transparency.

- 2114 *Perfectly transparent*, very rare, crystallized Light red Silver Ore, with some vitreous Silver Ore in and upon white Cobalt Ore, which is mixed with Ochre of Nickel, and with adhering decayed Gneiss; from Johangeorgenstadt.
- 2115 But very *slightly translucent* Light red Silver Ore, upon and in Quartz; from Schneeberg.

8. LIGHT GREY SILVER ORE.

Kirwan, 1st Family, 8th Spec.

a. Varieties of the Colour.

- 2116 *Sallow lead grey*, Light grey Silver Ore, with inlaying massive Galena and adhering Siderocalcite; from Freiberg.

2117 Light

- 2117 Light grey Silver Ore of a much *freßer* lead grey colour, in Quartz with much Galena, with adhering Gneiss; from Freiberg.

b. Varieties of the External Shape.

- 2118 *Massive* Light grey Silver Ore in Galena, which is mixed with some Martial Pyrites, less Blende and Quartz, with adhering Gneiss on both sides; from the same place.
- 2119 *Coarsely disseminated* Light grey Silver Ore in Galena and Quartz, with some Blende and adhering Gneiss; from Freiberg.
- 2120 *Minutely disseminated* Light grey Silver Ore in a compound of Galena and Siderocalcite, with much Arsenical and some Martial Pyrites, as also a little Blende, and Gneiss adhering to both sides; from the same place.
- 2121 *Very finely disseminated* Light grey Silver Ore in drusy Quartz with Gneiss; from Freiberg.

c. Varieties of the Fracture.

- 2122 *Massive* Light grey Silver Ore with a tolerably perfect *even* fracture, in the usual compound (as No. 2119); from Freiberg.
- 2123 *Massive* Light grey Silver Ore of a *small grained uneven* fracture, mixed with Antimoniated Silver Ore and much Galena; from the same place.
- 2124 A piece of Light grey Silver Ore whose fracture exhibits numerous *fibres*, therefore passing into the Plumose Ore of Antimony; from the Himmelsfürst near Freiberg.

V. COPPER.

V. COPPER.

1. NATIVE COPPER.

Kirwan 1st Spec.

a. Varieties of the Colour.

- 2125 Tolerably perfect Copper red Native Copper, on Quartz; from Siberia.
- 2126 Somewhat yellowish brown tarnished Dendritic Native Copper; from Kasan in Siberia.
- 2127 Greenish and Gold yellow tarnished Native Copper, with red Copper Ore, in Quartz; from Umba in Siberia.
- 2128 Dark brown tarnished Native Copper; from Transylvania.

b. Varieties of the external Shape.

a. a. The Common External Shape.

- 2129 Massive Native Copper in Siderocalcite, which is mixed with compact brown Iron-stone; from Salsfeld.
- 2130 Disseminated Native Copper in Siderocalcite, which is intersected with brown Hematite; from Blankenburg.
- 2131 Superficial Native Copper upon Baroselenite; from Schlangenberg in Siberia.

b. b. The Particular External Shape.

- 2132 A plate of Native Copper; from Wechoturja.
- 2133 Imperfectly dentiform Native Copper in Zeolite, with Mountain green; from the Isles of Ferroé.
- 2134 Minute filiform Native Copper, with adhering Jasp-agate; from Rudnobanya in Upper Hungary.
- 2135 Dendritic Native Copper on Quartz, with adhering Argillite; from the Lyonnese.

- 2136 *An entire bush* of Dendritic Native Copper; from Latour at Baygory in the Kingdom of Navarre.
- 2137 *Arbustiform* Native Copper, with some Quartz, and coated with Malachite; from Saska in the Bannat of Temeswar.
- 2138 *Indistinctly Botryoidal* Native Copper, with much Iron Ochre; from Saalfeld.
- 2139 *Amorphous* Native Copper with a little Quartz, and superficial indurated Clay; from St. Pierre in the Lyonnese.

α. The Regular External Shapes.

α. The Cube.

- 2140 Native Copper crystallized in perfect cubes mostly small and very small, botryoidally accumulated; from Hungary.
- 2141 Native Copper crystallized in minute similar cubes, in Quartz; from Rhein Breibach.
- 2142 Native Copper crystallized in the intermediate crystallization between the cube and the octohædron, in a groupe with some adhering Baroselenite; from Schlangenberg.

β. Double Tetrahedral Pyramids.

- 2143 Native Copper crystallized in lengthened Octohædrons, aggregated perfectly in branches, with overlaying compact Malachite; from Saska in the Bannat.
- 2144 Native Copper crystallized in very small, similar Octohædrons, upon Quartz; from Rhein Breibach.
- 2145 Native Copper crystallized in minute, similar Octohædrons, partly aggregated in buds, with Fluor Spar upon Gneiss, to which on the inferior side Specular Cobalt adheres; from Annaberg.

γ. Varieties of the Fracture.

- 2146 Crystallized Native Copper aggregated in buds, in which

which the *hackly* fracture is tolerably conspicuous; from Catharinenburg.

2. VITREOUS COPPER ORE.

Kirwan, 4th Family 3d Spec.

A. Compact.

a. Varieties of the Colour.

- 2147 Tolerably *fresh* Lead grey Compact Vitreous Copper Ore, with Quartz, and Lithomarga admixt, and adhering Gneiss; from Freiberg.
- 2148 Rather more inclining to *Iron black* Compact Vitreous Copper Ore, with a little Copper Pyrites intermixed, and overlaying compact Malachite, as also Ironshot indurated Clay; from the same place.
- 2149 *Variegatedly tarnished* Compact Vitreous Copper Ore, with Copper Pyrites upon Bituminous Marlite; from Sangerhausen.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2150 *Massive* Compact Vitreous Copper Ore in Quartz, which is mixed with some Calcareous Spar, and upon which is superficial compact Malachite; from Omdal in Norway.
- 2151 Partly *Massive*, traversing in entire slips, partly *coarsely disseminated* Compact Vitreous Copper Ore, in Quartz, coated in some places with a little Malachite; from Russia.
- 2152 *Superficial* Compact Vitreous Copper Ore, upon Bituminous Marlite; from Sangerhausen.

b. b. The regular External Shape.

a. Prisms.

- 2153 Compact Vitreous Copper Ore, crystallized in perfect

fect small hexahedral Prisms in Calcareous Spar, which intersects as a slip, grey indurated Marle; from Thuringia.

- 2154 Compact Vitreous Copper Ore crystallized in partly small, partly very small similar Prisms acuminated by three planes set on the lateral edges, in a vein-cleft, traversing bituminous Marlite; from the same place.

β. *Pyramids.*

- 2155 A solitary small perfect Octohædron of Compact Vitreous Copper Ore implanted on Massive ditto; from Frankenberg in Hesse.
- 2156 More, similar, small, aggregated Octohædrons of Compact Vitreous Copper Ore, upon and in Slate-clay; from the same place.

c. *Varieties of the Fracture.*

- 2157 Compact Vitreous Copper Ore of a tolerably *minute conchoidal* fracture, with adhering Siderocalcite and some Argillite.
- 2158 Compact Vitreous Copper Ore with a *small grained uneven* fracture, in Iron-shot Quartz; from Sunnerkop in Sweden.
- 2159 Compact Vitreous Copper Ore of a nearly *even* fracture, with disseminated white Copper Ore, as also some Copper Pyrites and Quartz; from the Johannes at Lerchenberg, near Freiberg.
- 2160 Some fragments of Vitreous Copper Ore, which by reason of their *even* fracture and yellowish colour, graduate into white Copper Ore; from Frankenberg in Hesse.

B. *Foliated Vitreous Copper Ore.*

- 2161 Massive, as also coarsely disseminated Foliated Vitreous Copper Ore of a tolerably dark, and passing into black, lead grey colour, in a compound of Steatites and some Quartz, with adhering Argillite; from Seifen near Marienberg.

I

2162 Coarsely

- 2162 Coarsely disseminated and superficial Foliated Vitreous Copper Ore, of a somewhat more fallow colour, in compact smoke grey Limestone; from Thuringia.
- 2163 Minutely disseminated Foliated Vitreous Copper Ore, in which the fracture and the small granular distinct concretions are well exhibited, in white Copper Ore; from Frankenberg in Hesse.

3. PURPLE COPPER ORE.

Kirwan, 2d Family, 3d Spec.

a. Varieties of the Colour.

- 2164 Pinch-beck brown, strongly inclining to Copper-red Purple Copper Ore, in variegatedly tarnished compact vitreous Copper Ore; from the Bannat.
- 2165 Somewhat bluish tarnished Purple Copper Ore in Tile Copper Ore, with much fibrous Malachite on the surface; from Kamsdorf.
- 2166 Tarnished Purple Copper Ore, with the most beautiful colours of *tempered Steel*, with Copper Pyrites in Quartz; from Arendahl in Norway.
- 2167 Very dark tarnished Purple Copper Ore, in Quartz; from the Bannat.

b. Varieties of the External Shape.

- 2168 *Massive* as also *disseminated* Purple Copper Ore, with Malachite in Calcareous Spar; from Siberia.
- 2169 *Minutely disseminated* Purple Copper Ore in Quartz, with superficial Mountain-green and some Mica; from Lake Onega in Siberia.
- 2170 *Very thin superficial* Purple Copper Ore upon bituminous Marlite, with a traversing slip of Calcareous Spar; from Mansfeld.
- 2171 *A Plate*, nearly a line thick, of Purple Copper Ore upon bituminous Marlite, with a little disseminated Copper Pyrites; from the same place.

c. Varieties

c. *Varieties of the Fracture.*

- 2172 Massive Purple Copper Ore with a very distinct *minute conchoidal* fracture, but mixed with a large quantity of Copper Pyrites, and on the whole of a somewhat slaty aspect; from the Bannat.

4. YELLOW COPPER ORE, or COPPER PYRITES.

Kirwan, 1 Family, 3d Spec.

a. *Varieties of Colour.*

- 2173 *Perfectly brass-yellow* Copper Pyrites, in Quartz which is mixed with a little Siderocalcite; from the Hartz.
- 2174 *Brass-yellow* inclining a little to *gold-yellow* Copper Pyrites, in Siderocalcite; from the same place.
- 2175 *High gold yellow* Copper Pyrites, in a sort of Quartz which is mixed with Siderocalcite, much black Blende, and greenish clay, with adhering argillite; from Catharinenberg in Bohemia.
- 2176 *Dark gold-yellow*, here and there tarnished brownish, Copper Pyrites, in Quartz; from Freiberg.
- 2177 Variegatedly tarnished with *Pigeon-neck* colours, Copper Pyrites, with a Siderocalcite 'groupe' and Sparry Iron Ore on slaty Sandstone; from Sangerhausen.
- 2178 *Copper-red* and *green tarnished* Copper Pyrites, in Siderocalcite; from the Hartz.
- 2179 Somewhat more inclining to *brownish*, variegatedly tarnished Copper Pyrites, in Quartz, with adhering Argillite; from Norway.
- 2180 Still darker tarnished Copper Pyrites, with the same, Gold-yellow, and adhering Argillite; from Dognaska in the Bannat.
- 2181 *Very dark copper red*, slightly pavonated Copper Pyrites, in Quartz; from Freiberg.
- 2182 *Very beautifully pavonated* Copper Pyrites, with traversing slips of Siderocalcite; from Grosskamsdorf.

- 2183 With the *blue colour of tempered Steel*, tarnished Copper Pyrites, with disseminated Martial Pyrites in Argillite; from Dognazka in the Bannat.
- 2184 Very *dark*, with the colour of *tempered Steel*, tarnished Copper Pyrites, with Fluor Spar which passes into compact Fluor; from Andreasberg in the Hartz.

Rem. This Fluor is taken by many for Quartz.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2185 *Massive* Copper Pyrites in Fluor Spar, with some grey Copper Ore upon decayed Gneiss; from Freiberg.
- 2186 *Oblong granular massive* Copper Pyrites in Siderocalcite (Tyger Ore so called); from the same place.
- 2187 *Coarsely disseminated* Copper Pyrites in Calcareous Spar; from Lutternberg.
- 2188 *Minutely and finely disseminated* Copper Pyrites in Tile Copper Ore, with much Malachite and Iron Ochre; from Saalfeld.
- 2189 *Thin superficial* Copper Pyrites, with the same disseminated, upon Sandstone; from Siberia.
- 2190 Rather *thicker superficial* Copper Pyrites upon Stone-coal, with traversing slips of Calcareous Spar; from Wettin.

b. b. The Particular External Shape.

- 2191 *Specular* Copper Pyrites, with *Massive ditto* in Quartz; from Freiberg.
- 2192 *Small Dendritic* Copper Pyrites upon bituminous Marlite; from Sangerhausen.
- 2193 Copper Pyrites with *cubic impressions*; from Andreasberg, in the Hartz.

c. c. *The Regular External Shapes.*a. *Double Tetrahedral Pyramids.*a. a. *With the usual Apex.*

- 2194 A perfect Octohædron of a middling size of Copper Pyrites, with adhering Fluor Spar; from Derbyshire.
- 2195 Copper Pyrites crystallized in the same manner, but small, and partly macled, with Sparry Iron Ore upon a Quartz Groupe, and adhering Calcareous Spar underneath; from the Hartz.
- 2196 Copper Pyrites crystallized in very small, similar Octohædrons, upon a groupe of Sparry Iron Ore Crystals, which rests upon Quartz, and to which brown Blende adheres; from Freiberg.
- 2197 Copper Pyrites crystallized in the same manner, but more indistinct, the crystals adhere to one another in rows, and are coated with much Iron Ochre, upon massive ditto which is mixed with Tile and Azure Copper Ores; from Saalfeld.

β. β. *Terminating in an Edge.*

- 2198 Copper Pyrites crystallized in perfect double Tetrahedral Pyramids which terminate in an edge; from Hungary.

β. *Trihedral Pyramids.*

- 2199 Copper Pyrites crystallized in Trihedral Pyramids, partly small, partly of a middling size, tarnished with pidgeon-neck colours; from Baygory in Lower Navarre.
- 2200 Copper Pyrites crystallized in similar Pyramids, adhering together by their lateral planes, upon massive ditto which is mixed with some Quartz; from the Hartz.
- 2201 Copper Pyrites crystallized in small similar Pyramids implanted upon one another, in massive ditto which is mixed with some Siderocalcite; from the Hartz.

Rem. Here and there one may observe angles truncated.

2202 Copper

- 2202 Copper Pyrites crystallized in very small similar Pyramids, upon a Quartz Groupe which rests upon Baroselenite; from Gerstdorf near Freiberg.

c. Varieties of the Lustre.

- 2203 Copper Pyrites, which internally is *strong glittering*, with adhering Quartz; from Siberia.
- 2204 A piece of Copper Pyrites, which internally is *glittering*, but approaching the foregoing, in Siderocalcite which is mixed with Sparry Iron Ore; from the Hartz.
- 2205 Massive Copper Pyrites internally but *faintly glittering*, therefore approaching to the following, mixed with some Quartz; from Fahlun in Sweden.
- 2206 Massive Copper Pyrites which internally possesses but *little lustre*, mixed with crystallized and glittering massive ditto, partly calcined on the surface, in Calcareous Spar; from Grofskamfsdorf.
- 2207 Copper Pyrites with a *slight glittering lustre* passing into the *glimmering*, in Quartz; from Hungary.
- 2208 A piece of *very faintly glimmering* Copper Pyrites, in compact Galena; from Goslar in the Hartz.

d. Varieties of the Fracture.

- 2209 A piece of Copper Pyrites with an *imperfectly conchoidal* fracture, in Quartz; from Siberia.
- 2210 Copper Pyrites of a very minute *conchoidal* fracture, with adhering Quartz in which some Hornblende is disseminated; from Fahlun in Sweden.
- 2211 A piece of Copper Pyrites with a *coarse-grained uneven* fracture, here and there mixed with Siderocalcite; from the Hartz.
- 2212 A piece of Copper Pyrites with a *small-grained uneven* fracture, with adhering very solid Argillite, and some Siderocalcite; from Rammelsberg.
- 2213 Copper Pyrites with a *fine-grained uneven* fracture, with some adhering indurated Tile Copper Ore and Quartz; from the Bannat.
- 2214 A piece of Copper Pyrites with an *imperfectly even* fracture; from the Hartz.

e. Transitions.

e. *Transitions.*

- 2215 Coarsely disseminated Copper Pyrites with Grey Copper Ore, in which one can observe in many places how the *former* passes into the *latter*, with disseminated and adhering Fluor Spar; from Gersdorf near Freiberg.
- 2216 A piece of Copper Pyrites in which the *transition* into white Copper Ore is very beautifully exemplified, in Quartz which is mixed with the common Copper Pyrites; from Freiberg.

5. WHITE COPPER ORE.

Kirwan, 6th Spec.

- 2217 Silver white Copper Ore mixed with Copper Pyrites; from the Lorenz Gegentrum near Freiberg.
- 2218 Somewhat more inclining to Tin white, massive White Copper Ore mixed with a little Copper Pyrites, with an adhering Quartz groupe; from Catharinenburg in Siberia.
- 2219 Minutely disseminated White Copper Ore, with Purple Copper Ore and a little Malachite in Quartz; from Freiberg.
- 2220 White Copper Ore as a petrification of the Phalaris Pulposa Linnæi, partly also appearing as Octohedral Crystals, with Vitreous Copper Ore in Slate Clay; from Frankenberg in Hesse.
- 2221 Small detached pieces of the same in which the transition into Vitreous Copper Ore is conspicuous; from the same place.

6. GREY COPPER ORE.

*Kirwan. 5th Family 3d Spec.*a. *Varieties of the Colour.*

- 2222 Moderately dark steel grey Copper Ore, with adhering Sandstone

Sandstone on both sides, as also mixed with some Calcareous Spar; from Salzburg.

- 2223 Somewhat *lighter steel grey* Copper Ore in Quartz; from Braunsdorf near Freiberg.
- 2224 Still *lighter steel grey* Copper Ore, mixed with Copper Pyrites in Quartz; from Kremnitz in Hungary.
- 2225 *Dark pavonated* Grey Copper Ore, with much common grey ditto in green indurated Clay; from Neu-sohl, in Hungary.
- 2226 Grey Copper Ore *tarnished* with the colour of *tempered Steel*, with Copper Pyrites and some Quartz, also adhering decomposed Argillite; from the same place.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2227 *Massive* Grey Copper Ore, with a little Copper Pyrites and adhering very Iron-shot Tile Copper Ore; from Saalfeld.
- 2228 *Coarsely disseminated* Grey Copper Ore, with yellow Blende in red Ore of Manganese; from Scharfenberg near Meissen.
- 2229 *Minutely disseminated* Grey Copper Ore in Quartz which is mixed with some Fluor Spar; from Gersdorf.
- 2230 *Finely disseminated* Grey Copper Ore in Quartz, with adhering Argillite; from the same place.

b. b. The Particular External Shape.

- 2231 *Specular* Grey Copper Ore, with *Massive* ditto which is partly internally mixed with Copper Pyrites, in Siderocalcite forming a slip in grey Wacke; from the Hartz.

! c. *The regular External Shape.*a. *Pyramids.*a. a. *Without alteration.*

- 2232 Grey Copper Ore crystallized in perfect Trihædral Pyramids, which are small, with Massive ditto, as also much Copper Pyrites and some Siderocalcite intermixed; from the same place.
- 2233 Grey Copper Ore crystallized in very small, similar Pyramids, in a compound consisting of a very large proportion of Massive ditto with much Baroselenite and some Copper Pyrites as also extremely few Fluor Spar Cubes; from Freiberg.

β β. *Bevilled.*

- 2234 Grey Copper Ore crystallized in similar *Pyramids* ~~Prisms~~, but very slightly bevilled at the edges, with massive ditto, in which much Baroselenite, as also red and brown Cobalt Ores occur intermixed; from Saalfeld.
- 2235 Grey Copper Ore crystallized in the same manner, but more distinct and more deeply bevilled, in a compound of Massive ditto, very much Quartz, and some adhering Fluor Spar; from Gersdorf.
- 2236 Grey Copper Ore crystallized in very deeply bevilled similar small trihædral Pyramids, measuring above the third of an inch, which are overlaid with Copper Pyrites, upon and in Siderocalcite, in which a little Galena is disseminated; from the Hartz.
- 2237 Grey Copper Ore crystallized in extremely deep bevilled, similar, small, nearly very small Pyramids, with a Fluor Spar groupe in Quartz, to which Argillite adheres on both sides; from Gersdorf.

γ. γ. *Truncated and Bevilled.*

- 2238 A groupe of very small Trihædral Pyramidal Grey Copper Ore Crystals, the edges truncated, and the angles
- K k

angles acuminated by three planes, upon a compound of Massive Grey Copper Ore with very much Copper Pyrites and a Calcareous Spar Groupe strewed over the surface; from Salzburg.

- 2239 Grey Copper Ore crystallized in the same manner, but with larger acuminating planes, upon and in Cinnabar, with adhering Quartz underneath; from Hungary.

β. Prisms.

- 2240 Grey Copper Ore crystallized in very small hexædral Prisms bevelled at their extremities, the bevelled planes set on the lateral planes, in Massive ditto which is mixed with Siderocalcite and Calcareous Spar, with adhering grey Wacke; from the Hartz.

c. Varieties of the Internal Lustre.

- 2241 Grey Copper Ore which is internally *strong glittering*, with a Siderocalcite Groupe upon Sparry Iron Ore, with adhering Quartz underneath, in which much Galena is intermixed; from the same place.
- 2242 Grey Copper Ore which holds the medium between the *glittering* and *strong glittering*, in compact brown Ironstone which is mixed with Quartz; from Weilburg.
- 2243 Massive and coarsely disseminated, internally *glittering* Grey Copper Ore, with a little Copper Pyrites in Calcareous Spar, with walls of Argillite on both sides; from Gerfsdorf.
- 2244 Grey Copper Ore, whose internal lustre is slightly *glittering*, with intermixed Calcareous and Fluor Spars; from the same place.
- 2245 Coarsely disseminated grey Copper Ore possessed of a *low* degree of the *glittering* lustre, in Quartz which is mixed with Fluor Spar; from Freiberg.
- 2246 Massive grey Copper Ore of an internal lustre which is intermediate between *slightly glittering* and the *glimmering*, with a little Galena in Baroselenite; from Freiberg.

d. Varieties

d. Varieties of the Fracture.

- 2247 Massive grey Copper Ore with a tolerably *perfect minute conchoidal* fracture, in Quartz which is mixed with decomposed Argillite; from the Hartz.
- 2248 Massive grey Copper Ore whose fracture is intermediate between the *minute conchoidal* and *coarse grained uneven*, with much Galena and Siderocalcite, as also adhering Argillite; from the Hartz.
- 2249 A piece of grey Copper Ore with a *small grained uneven* fracture, in a compound of Fluor Spar and Quartz, as also some adhering Argillite; from Gerfsdorf.
- 2250 A slip of grey Copper Ore of an actually *even* fracture, with Siderocalcite and foliated Vitreous Copper Ore intermixed, intersecting grey Wacke; from Salzburg.

e. Transitions,

- 2251 Grey Copper Ore mixed with Copper Pyrites, which pretty evidently *graduates* into the latter, in compact brown Iron stone which is mixed with some little Malachite and blue Copper Ore; from Saalfeld.

7. BLACK COPPER ORE.

Kirwan, 3d Family 3d Spec.

- 2252 Black Copper Ore of a moderately brownish black colour, as an overlayer upon Copper Pyrites, with much adhering Fluor Spar, and underneath with disintegrated Gneiss; from the Halsbrücke near Freiberg.
- 2253 Very dark brown slightly inclining to cochineal red, Black Copper Ore, forming a thinner coating upon Copper Pyrites, from the same place.

8. RED COPPER ORE.

A. Compact Red Copper Ore.

a. Varieties of the Colour.

- 2254 Compact Red Copper Ore of a very dark *cochineal red* colour, with some Calcareous Spar and Malachite, as also adhering Tile Copper Ore; from Kamsdorf.
- 2255 High *cochineal red* Compact Red Copper Ore, in an Hornstone coated over with Malachite; from Arendahl in Norway.

b. Varieties of the External Shape.

- 2256 Massive Compact Red Copper Ore, with compact Malachite upon Iron-shot Sandstone; from Kamsdorf.
- 2257 Coarsely disseminated ditto, in a compound of Malachite and Iron-shot Tile Copper Ore, from the same place.
- 2258 Finely disseminated Compact Red Copper Ore, with Calcareous Spar and Copper Pyrites, in Iron-shot Tile Copper, from the same place.
- 2259 Superficial Compact Red Copper Ore, upon compact Tile Copper Ore mixed with Fibrous Malachite; from the same place.

c. Varieties of the Fracture.

- 2260 Massive Red Copper Ore with a compact *even* fracture which here and there exhibits some *minute folia*, with a Calcareous Spar grouse, in Ironshot Tile Copper Ore; from Grosskamsdorf.

B. Foliated Red Copper Ore.

a. Varieties of the Colour.

- 2261 Foliated Red Copper Ore of an intermediate colour

lour between *cochineal red* and *lead grey*, with compact Malachite in Sandstone; from Siberia.

- 2262 *High cochineal red* Foliated Red Copper Ore, partly crystallized in Octohædrons, but for the greater part massive, in a coarse Sandstone in some places mixed with Malachite; from the same place.

b. Varieties of the External Shape.

- 2263 *Massive* Foliated Red Copper Ore, with much Fibrous Malachite and Iron Ochre; from the Uralian Mountains.
- 2264 Foliated Red Copper Ore crystallized in minute perfect cubes, drusically accumulated, with indurated Iron Ochre; from the same place.

c. Varieties of the Fracture.

- 2265 Red Copper Ore with a tolerably distinct *plain*, at the same time *very minutely foliated* fracture, with much adhering Malachite and Iron Ochre; from the same place.
- 2266 Red Copper Ore with a somewhat *curved foliated fracture*, in massive ditto which is mixed with much Iron Ochre and some Malachite; from the same place.

C. Fibrous Red Copper Ore.

- 2267 Extraordinarily beautiful *carmine-red* Fibrous Red Copper Ore in very numerous large parcels, upon a slightly Iron-shot Quartz; from the Lorenz Gegend near Freiberg.
- 2268 *High carmine red*, slightly inclining to *scarlet* Fibrous Red Copper Ore, upon Quartz which is mixed with adhering Baroselenite; from the same place.

9. TILE COPPER ORE.

Kirwan. 2d Family, 3d Tribe, 2d Spec.

A. Earthy Tile Copper Ore.

a. Varieties of the Colour.

- 2269 *Hiacinth red* Earthy Tile Copper Ore, with indurated

rated ditto which is mixed with a little Fibrous Malachite; from Orawizza in the Bannat.

Rem. Borns Cupriferous Jasper.

- 2270 From the *biacintb red* passing into *reddish brown*, Earthy Tile Copper Ore, upon Copper Pyrites which is mixed with much Fibrous Malachite, and Iron Ochre; from Kamsdorf.

b. Varieties of the External Shape.

- 2271 *Massive* Earthy Tile Copper Ore, mixed with a large quantity of Copper Pyrites, Malachite, and Iron Ochre; from the same place.
- 2272 Earthy Tile Copper Ore forming a *thick coating* upon very Iron-shot Baroselenite, with Sparry Iron Ore adhering underneath; from the same place.
- 2273 Earthy Tile Copper Ore as a *thin coating* upon Copper Pyrites, with some Malachite, as also a little Calcareous Spar; from the Bannat.

B. Indurated Tile Copper Ore.

a. Varieties of the Colour.

- 2274 *Yellowish*, in some places *clove-brown* Indurated Tile Copper Ore, mixed with much Iron Ochre; from Kamsdorf.
- 2275 Indurated Tile Copper Ore of a somewhat *brighter* colour more inclining to *red*, with a little foliated Red Copper Ore and Malachite, as also very much Iron Ochre intermixed; from the Uralian Mountains.

b. Varieties of the External Shape.

- 2276 *Massive* Indurated Tile Copper Ore, with a little Native Copper and a large quantity of Iron Ochre; from Saalfeld.
- 2277 *Coarsely diffeminated* Indurated Tile Copper Ore, with

with much Copper Pyrites and some Native Copper, in Indurated Iron Ochre; from the same place.

c. Varieties of the Fracture.

- 2278 Compact Tile Copper Ore with an imperfect conchoidal fracture which is very distinct, in a compound of Baroselenite, Fibrous Malachite, and very much Iron Ochre; from Grofskamfsdorf.
- 2279 Indurated Tile Copper Ore of an *earthy* fracture, in some places mixed with much Siderocalcite, and with adhering Sparry Iron Ore, upon which an extraordinary quantity of Iron Ochre is seated; from Grofskamfsdorf.

10. BLUE COPPER ORE.

Kirwan, 1st Trib. 2d Spec.

A. *Earthy Blue Copper Ore.*

a. Varieties of the Colour.

- 2280 A piece of Earthy blue Copper Ore of a *smalt blue* colour somewhat inclining to *sky blue*, with a little Malachite; from Falkenstein in Tyrol.
- 2281 *Light Sky blue* Earthy blue Copper Ore, with striated ditto, upon Baroselenite, to which a slip of Ironshot mountain green and grey Copper Ore with indurated Iron Ochre, adheres; from Saalfeld.

b. Varieties of the External Shape.

- 2282 *Massive* Earthy blue Copper Ore, mixed with striated ditto, upon Baroselenite, with adhering Iron Ochre, from the same place.
- 2283 Earthy blue Copper Ore, as a *very thin coating* upon a compound of Copper Pyrites, Tile Copper Ore, crystallized striated blue Copper Ore, and Iron Ochre; from the Bannat.
- 2284 *Superficial* Earthy blue Copper Ore, upon granular Limestone, with adhering, somewhat micaceous Argillite on both sides; from Tyrol.
- 2285 *Minute Botryoidal* Earthy blue Copper Ore; from Hungary.

c. Varieties

c. Varieties of the Fracture.

- 2286 Blue Copper Ore of a *fine earthy* fracture, with much compact Malachite and earthy Cobalt, admixt; from Saalfeld.

*B. Striated blue Copper Ore.**a. Varieties of the Colour.*

- 2287 Striated blue Copper Ore of an intermediate colour between *dark sky blue* and *azure blue*, upon Ironshot Tile Copper Ore mixed with some Malachite; from Orawizza in the Bannat.
- 2288 *High azure blue* Striated blue Copper Ore, with much Iron Ochre and Malachite; from Moldawa in the Bannat.
- 2289 *Intense azure blue* Striated blue Copper Ore, upon a very Ironshot Tile Copper Ore, from the same place.
- 2290 *Very dark azure* Striated blue Copper Ore, in a compound consisting of indurated Iron Ochre, Ironshot mountain green, and Baroselenite; from Saalfeld.

*b. Varieties of the External Shape.**a a. The Common External Shape.*

- 2291 *Massive* Striated blue Copper Ore, in Malachite, with a little Iron Ochre; from the Bannat.
- 2292 *Superficial* Striated blue Copper Ore, with crystallized ditto and some of the foregoing variety, upon Ironshot Horn-stone; from the Langenhekke.

*b b. The regular External Shape.**a. Prisms.*

- 2293 Striated blue Copper Ore crystallized in rectangular Tetrahædral Prisms acuminated by four planes

- planes set on the lateral edges, upon Calcedony, with adhering fine-grained sparry Iron Ore.
- 2294 Striated Blue Copper Ore crystallized in the same manner, but with two very broad planes, accumulated into a groupe, with some Malachite and Tile Copper Ore; from the Bannat.
- 2295 Striated Blue Copper Ore crystallized in the same manner, but smaller, and globularly, almost botryoidally accumulated, upon Ironshot, in some places very decayed, Tile Copper Ore, with compact Malachite; from the same place.
- 2296 Blue Copper Ore crystallized in similar, very small, Prisms, in the usual compound (No. 2290) to which Grey Copper Ore is superadded; from Saalfeld.
- 2297 Blue Copper Ore very minutely crystallized in the same manner, but the crystals adhere very closely to one another, in the foregoing compound, but without Grey Copper Ore; from the same place.
- 2298 Similarly crystallized Blue Copper Ore, in some places irregularly scopiformly connected together, upon Ironshot Baroselenite; from the same place.
- 2299 Crystallized Blue Copper Ore, in minute bushes, which united afterwards form a drusy Pellicle, in indurated Iron Ochre; from Saalfeld.
- 2300 Striated Blue Copper Ore, crystallized in very small budlike clusters, which are separated singly from one another, in the usual mixture (No. 2297); from Saalfeld.
- 2301 Striated Blue Copper Ore crystallized in minute similar Prisms, which form a thin coating upon sparry Iron Ore completely decayed to an Iron Ochre, in a compound of very much Copper Pyrites, much Ironshot Mountain green, and some Grey Copper Ore, with superficial Mountain green; from Grofskamfsdorf.
- 2302 Similarly crystallized, minutely botryoidally accumulated, Blue Copper Ore, in Tile Copper Ore, with disseminated grey Copper Ore and much Iron Ochre; from the same place.

B. Lenticular.

- 2303 Striated Blue Copper Ore, in small, almost very small, Tetrahedral lenticular Crystals, in a compound of much Baroselenite, some Iron Ochre, sparry Iron Ore and Malachite; from the same place.
- 2304 Similarly crystallized, globularly accumulated, Blue Copper Ore, with adhering Ironshot Malachite; from the Bannat.
- 2305 Striated Blue Copper Ore in minute, similar, lenticular Crystals, botryoidally accumulated, with some earthy ditto, in very Ironshot Mountain green mixed with Baroselenite; from Saalsfeld.
- 2306 In the same manner, minutely botryoidally accumulated, crystallized Blue Copper Ore, upon Iron-Ochre which is mixed with Mountain green; from the Bannat.
- 2307 Similarly crystallized Blue Copper Ore, the Crystals in some places forming drusy Pellicles, upon Malachite which is coated with Iron Ochre.

c. Varieties of the Fracture.

- 2308 Blue Copper Ore, in some parts of which the *diverging striated* fracture is well displayed, partly drusy, partly with earthy ditto intermixed, but with a large proportion of Iron Ochre throughout; from the Bannat.
- 2309 The same, with a very *narrow striated*, passing into the *compact*, fracture, studded with Crystals throughout, and mixed with much Iron Ochre; from Dognazka in the Bannat.

III. MALACHITE.

*Kirwan, 1st Family, 2d Tribe, 2d Spec.**A. Fibrous Malachite.**a. Varieties of the Colour.*

- 2310 Fibrous Malachite of an intermediate colour between

- tween *grass* and *apple green*, with compact ditto in some places mixed, in Ironshot Copper Pyrites; from the Bannat.
- 2311 Somewhat *darker* Fibrous Malachite of a beautiful *grass green* colour, with Iron Ochre mixed, and adhering Argillite; from Saalfeld.
- 2312 *Dark grass green*, on the surface strongly inclining to grey, Fibrous Malachite, upon Iron Ochre, with some Argillite underneath; from the same place.
- 2313 *Dark grass green* Fibrous Malachite, very strongly inclining to grey, with much sparry Iron Ore, some Baroselenite and Iron Ochre intermixed; from the same place.

b. Varieties of the External Shape.

a. a. The common External Shape.

- 2314 *Massive* Malachite, in Quartz which is mixed with much Copper Pyrites; from the Hartz.
- 2315 *Coarsely disseminated* fibrous Malachite, in compact ditto which is mixed with some Blue Copper Ore, and decomposed Argillite; from Catharinenburg.
- 2316 *Superficial* fibrous Malachite, with the same interspersed and much Blue Copper Ore in Calcareous Spar; from Bulach in the Dutchy of Würtemberg.

b. b. The Regular External Shape.

- 2317 Fibrous Malachite crystallized in acicular Prisms, very beautiful and distinct; from the Bannat.
- 2318 Fibrous Malachite in similar but a little more slender, scopiformly accumulated, acicular Crystals, with Tile Copper Ore mixed; from the same place.
- 2319 Fibrous Malachite crystallized in Capillary, scopiformly aggregated, similar Prisms, upon indurated Iron Ochre; from the same place.
- 2320 Fibrous Malachite crystallized in minute, scopiformly aggregated similar Prisms, in which the Crystals are still very distinguishable, upon an Ironshot Tile Copper Ore, with adhering Argillite underneath; from Kamsdorf.
- 2321 Just so, but reniformly accumulated, crystallized

- Fibrous Malachite in indurated Iron Ochre, with disseminated Argillite here and there; from the same place.
- 2322 Malachite similarly crystallized, partly reniformly, partly in such a manner accumulated that in some places a pectinated appearance is the result, in Iron Ochre; from the same place.
- 2323 In the foregoing manner reniformly accumulated, minutely crystallized Malachite, of which the single crystals are distinct barely at their Apices, upon indurated Iron Ochre; from the same place.
- 2324 In a similar manner crystallized, botryoidally accumulated Fibrous Malachite, in the same compound, in which however Sparry Iron Ore is discernible; from the same place.
- 2325 Just so, but tolerably globularly accumulated, crystallized Malachite, in which the separate Crystals are to be recognized as such, only, and that scarcely, by the silky lustre upon their surface; from the same place.
- 2326 Malachite so finely crystallized, that even the lustre of their surfaces has almost completely disappeared, and therefore the whole resembles an overcast, upon Argillite; from Kamsdorf.

c. Varieties of the Fracture.

- 2327 *Extremely delicate fibrous* Malachite, with some Iron Ochre and adhering Argillite; from the same place.
- 2328 From the *fibrous* passing into the *striated*, Malachite; from Siberia.
- 2329 *Moderately broad striated* Malachite, whose colour inclines to *Verdigris green*, therefore it is to be considered as a transition into the Blue Copper Ore, with a little genuine Blue Copper Ore, upon indurated Iron Ochre; from Saalfeld.

d. Varieties of the distinct Concretions.

- 2330 A piece of Fibrous Malachite in which, *coarse* and *small*, moderately *oblong granular* distinct Concretions are discoverable, in compact ditto, mixed with foliated

liated Red Copper Ore, with overlaying acicular crystals on one side; from Siberia.

- 2331 A piece of polished Fibrous Malachite, with very *thick lamellar* distinct concretions.
- 2332 The same, with rather *thin and curved lamellar* distinct concretions.
- 2333 Fibrous Malachite, partly with very *thin lamellar*, partly also with *granular* distinct concretions.

Rem. The three last are from Siberia.

B. Compact Malachite.

a. Varieties of the Colour.

- 2234 Compact Malachite from the *apple-green* strongly inclining to *grass-green*, in and upon a compound of Quartz and Vitreous Copper Ore; from Freiberg.
- 2335 Compact Malachite of an intermediate colour between *apple* and *verdigris-green*, with indurated Iron-shot and Sandy Clay admixt; from Siberia.
- 2336 *Apple-green*, somewhat inclining to *Mountain-green*, Compact Malachite in Sandstone, with a little blue Copper Ore; from Siberia.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2337 *Massive* Compact Malachite, with a little Blue Copper Ore in Sand-stone; from the same place.

Rem. The Sand-stone extremely resembles grey Wacke.

- 2338 Partly *disseminated*, partly *superficial* Compact Malachite, in a compound of Copper Pyrites and Hornstone, with adhering decomposed Argillite; from Saalfeld.

b. b. The

b. b. The Particular External Shape.

- 2339 Globular, passing into reniform, Compact Malachite mixed with much Ironshot Mountain green; from Siberia.
- 2340 Reniform Compact Malachite; from Falkenstein in Tyrol.
- 2341 Minute reniform, partly botryoidal, Compact Malachite upon Ironshot Argillite; from the Bannat.

c. Varieties of the Fracture.

- 2342 Malachite with an imperfectly conchoidal fracture, in a compound of very Ironshot Tile Copper Ore and Quartz, with some Copper Pyrites; from the Hartz.
- 2343 Botryoidal Malachite of a nearly even fracture, in an indistinctly slaty Rock-stone; from Siberia.
- 2344 Malachite, whose compact fracture passes into the delicately fibrous, upon indurated Iron Ochre, with some inlaying Tile Copper Ore; from Kamsdorf.

12. MOUNTAIN GREEN.

*Kirwan. 2d Family, 2d Tribe, 2d Spec.**a. Varieties of the Colour.*

- 2345 Mountain green of a *Verdigris green* colour much inclining to *sky-blue*, in a compound consisting of a large quantity of Copper Pyrites, some Fibrous Malachite, common Quartz, and a little Barosele-nite; from Kamsdorf.
- 2346 A piece of Mountain green of a dark *Verdigris green* colour inclining to *olive-green* at the edges, with over laying Iron Ochre; from Catharinenburg in Siberia.

b. Varieties of the External Shape.

- 2347 Mountain green, partly coarsely disseminated, partly,

as a coating, on grey Copper Ore which is mixed with some Baroselenite; from Saalfeld.

- 2348 Mountain green as a *moderately thick overcast*, with red Cobalt and Blue Copper Ores, upon a compound of grey Copper Ore, Copper Pyrites, Ironshot Mountain green and Iron Ochre; from the same place.
- 2349 Mountain green, forming a *thinner, partly botryoidal overcast*, upon Baroselenite which is mixed with grey Copper Ore, Ironshot Mountain green and earthy Cobalt Ore more or less intimately.
- 2350 *Reniform* Mountain green, with crystallized Blue Copper Ore in a compound of Ironshot Mountain green, Copper Pyrites and Iron Ochre with adhering decomposed Argillite; from Kamsdorf.

13. IRONSHOT MOUNTAIN GREEN.

Kirwan, 6th Spec.

A. Earthy Ironshot Mountain green.

a. Varieties of the Colour.

- 2351 Rather *dark olive green*, Earthy Ironshot Mountain green, mixed with much blue Copper Ore, some Malachite and much grey copper Ore; from the Louisa Christiana at Lauterberg in the Hartz.
- 2352 *High olive*, slightly inclining to *canary green*, Earthy Ironshot Mountain green, in a compound of very much Baroselenite, some Blue Copper Ore, and red Cobalt Ore; from Saalfeld.
- 2353 Earthy Ironshot Mountain green of an intermediate colour between *olive* and *canary green*, in Sandstone, with adhering Baroselenite upon which superficial blue Copper Ore and red Cobalt Ore occur; from the same place.

a. Varieties of the External Shape.

- 2354 *Massive* Earthy Ironshot Mountain green, with grey Copper Ore, Blue Copper and red Cobalt Ores in Baroselenite, from the same place.

2355 *Coarsely*

- 2355 *Coarsely disseminated* Earthy Ironshot Mountain green, in a compound of grey Copper Ore and Copper Pyrites, with adhering decomposed Argillite; from the same place.
- 2356 *Finely disseminated, partly superficial,* Earthy Ironshot Mountain green, with common Mountain green and red Cobalt Ore, in and upon Baroselenite; from the same place.

B. *Glassy Ironshot Mountain Green.*

- 2357 Blackish green, glassy Ironshot Mountain green, with very much grey Copper Ore and drusy blue Copper Ore in lamellar Baroselenite; from the Frischen Glück at Kamsdorf.

VI. I R O N.

1. NATIVE IRON.

Kirwan, 1st Spec.

- 2358 Ramose Native Iron, with a little Chrysolite; from the Jenisei in Siberia.
2359. Rather broader Ramose Native Iron, with crystallized Chrysolite; from the same place.

Rem. The Chrysolite here inlaying, seems to be crystallized in rectangular Tetrahedral Prisms, with bevelled extremities and convex lateral planes.

2. MARTIAL PYRITES

Kirwan 7th Spec.

A. *Common Martial Pyrites,*

a. *Varieties of the Colour.*

- 2360 *Perfectly pale Metallic yellow* Common martial Pyrites with Quartz, and adhering decomposed Gneiss on both sides; from Freiberg.

2361 *Rather*

- 2361 *Rather darker, pale Metallic yellow martial Pyrites, upon Argillite ; from Schneeberg.*
- 2362 *Martial Pyrites extremely slightly tarnished with the colours of a pigeons neck, mixed with much Blende and Quartz ; from Scharfenberg.*

b. Varieties of the External Shape,

a. a. The Common External Shape,

- 2363 *Massive Martial Pyrites with crystallized ditto, forming a slip in Argillite ; from Gersdorf.*
- 2364 *Coarsely and thickly disseminated Martial Pyrites in Quartz, with adhering decomposed Argillite ; from the same place.*
- 2365 *Minutely disseminated Martial Pyrites in Quartz ; from Freiberg.*
- 2366 *Finely disseminated Martial Pyrites in Quartz ; from Hungary.*
- 2367 *Thick superficial drusy Martial Pyrites upon Quartz, with adhering Gneiss ; from Freiberg.*
- 2368 *Very thin superficial Martial Pyrites upon Argillite ; from Schneeberg.*
- 2369 *A piece of Martial Pyrites, with partly cubic, partly Hexahedral Pyramidal impressions, and adhering Quartz ; from the same place.*

b. b. The Particular External Shape.

- 2370 *Minute reniform Martial Pyrites with drusy surfaces, and crystallized Calcareous Spar, upon Quartz which is mixed with Massive Martial Pyrites ; from the same place.*
- 2371 *Large reniform, in some places amorphous, Martial Pyrites, with some Calcareous Spar ; from the same place.*

*γ. γ. The regular External Shape.**α. Dodecahedrons.**α. α. Without much Alteration.*

- 2372 Martial Pyrites crystallized in perfect dodecahedrons under tolerably equal angles, the Crystals partly small, partly very small, upon Quartz, with a little red Cobalt Ore and adhering Argillite; from Schneeberg.
- 2373 Martial Pyrites similarly crystallized, but under unequal, here and there tolerably acute angles, the Crystals small and very small, implanted upon one another; from Bergamo in Italy.
- 2374 Similarly crystallized Martial Pyrites with remarkably obtuse angles, accumulated into a groupe, upon massive Martial Pyrites which is mixed with Argillite; from Joachimstahl in Bohemia.
- 2375 Martial Pyrites crystallized in the same manner, very small and accumulated into a groupe, in Hepatic Pyrites; from Johangeorgenstadt.
- 2376 Martial Pyrites crystallized in still smaller, similar Dodecahedrons, accumulated in small globules, upon a Quartz groupe; from Freiberg.

β. β. With the Primary Figure modified.

- 2377 Similarly crystallized Martial Pyrites, but the planes meeting under very obtuse angles, and with the angles truncated, in small solitary Crystals, in Copper Pyrites; from Köniz in Salzburg.
- 2378 Martial Pyrites crystallized in similar, small, accumulated Dodecahedrons, with massive ditto, in Quartz; from Warback in Hohenstein.
- 2379 Martial Pyrites crystallized in solitary, similar Dodecahedrons with the angles very deeply truncated.
- 2380 Martial Pyrites crystallized in similar Dodecahedrons, but small, and with their edges obtusely bevelled; from the Catharine at Raschau.

2381 Martial

- 2381 Martial Pyrites crystallized in the same manner partly, and for the most part very small, bevilled very deeply, with Galena in Quartz; from Freiberg.
- 2382 Crystallized Martial Pyrites forming a genuine transition from the foregoing Crystal into the Cube, accumulated in a groupe, the Crystals, partly of a middling size, partly small, upon massive ditto which is mixed with some Quartz; from the same place.

*β. Cubes.**α α. With Convex Faces*

- 2383 Martial Pyrites crystallized in Cubes with very strongly convex planes, of a middling size, with a sparry Iron Ore groupe and some Galena, upon a compound of Quartz and Siderocalcite; from the same place.
- 2384 A little smaller, and with planes not so strongly convex, Cubically crystallized Martial Pyrites, with adhering Hepatic Pyrites; from Johangeorgenstadt.
- 2385 A groupe of similar, not less convex, Cubes, implicated in one another, of Martial Pyrites, upon massive ditto; from Johangeorgenstadt.
- 2386 A groupe of similar, partly smaller, Cubes, partly such that the elevation of the planes is but scarcely observable, upon a compound of black Blende and Quartz; from Freiberg.

β β. With flat Faces.

- 2387 Similarly crystallized Martial Pyrites with the planes very strongly streaked longitudinally; from the Catharina at Raschau.
- 2388 Similar crystallized Martial Pyrites streaked a little more faintly; from the same place.
- 2389 Martial Pyrites crystallized in small perfect Cubes, with planes extremely delicately streaked, in Argillite, with a little adhering Quartz; from Bareuth.

- 2390 A groupe of perfect, reniformly accumulated, cubic crystals of Martial Pyrites with smooth planes, upon a compound of Quartz and very little Galena; from Freiberg.
- 2391 Martial Pyrites crystallized in very small and minute, similar, flat reniformly accumulated cubes, with some Calcareous Spar upon Quartz; from the Hartz.

γ. γ. With the Angles truncated.

- 2392 A groupe of cubic Martial Pyritical Crystals, with angles very faintly truncated, upon Quartz which is mixed with much Siderocalcite; from Goslar in the Hartz.
- 2393 Martial Pyrites crystallized in similar cubes more deeply truncated, upon Fluor Spar; from the Halshbrücke.
- 2394 Crystallized Martial Pyrites forming an intermediate Crystal between the Cube and Octohædron, upon decayed Gneiss; from the same place.

γ. Double Tetrahedral Pyramids.

α. α. Truncated.

- 2395 Martial Pyrites crystallized in Octohædrons with angles deeply truncated, globularly accumulated; from Goslar.
- 2396 A groupe of similar Octohædral Crystals of Martial Pyrites, with angles faintly truncated, in Siderocalcite, with adhering fine granular Sparry Iron Ore; from Köniz in Salzburg.
- 2397 Martial Pyrites crystallized in the same manner, but prismatically accumulated, with some Quartz underneath; from Goslar.
- 2398 Martial Pyrites crystallized in very small, similar double tetrahedral Pyramids, with the angles in the slightest degree truncated, upon massive ditto, between which some Quartz intervenes; from Freiberg.

β. β. Perfect.

p. p. Perfect.

- 2399 A perfect Octohædron of Martial Pyrites which measures nearly half an inch; from the Hartz.
- 2400 Martial Pyrites crystallized in the same manner, but a little smaller and stellularly accumulated; from Goslar.
- 2401 Common Martial Pyrites crystallized in very small, similar, perfect Octohædrons drusically accumulated, with a little brown Blende admixt, in Hepatic Pyrites; from Joachimstahl.

y. y. The Extraneous External Shape.

- 2402 Common Martial Pyrites, as a transversely streaked *Chamite*, very distinctly petrified; from Normandy.

c. Varieties of the Fracture.

- 2403 A piece of Martial Pyrites of a *minute and imperfectly conchoidal* fracture, with a little Quartz; from the Catharina at Raschau.
- 2404 Common Martial Pyrites of a fracture which is intermediate between the *minute conchoidal* and *uneven*, in cellular Quartz; from Freiberg.
- 2405 Massive Martial Pyrites, with a *coarse-grained uneven* fracture, and mixed with a little Quartz; from the same place.
- 2406 Massive Martial Pyrites, with a *small-grained uneven* fracture, and much Calcareous Spar, some Galena and brown Blende intermixed; from Scharfenberg near Meissen.
- 2407 Massive Martial Pyrites, whose *fine-grained uneven* fracture here and there resembles the *striated* and evidently passes into the following variety, in Quartz which is mixed with some Siderocalcite; from Goslar in the Hartz.

Rem. The internal lustre varies at the same time with the fracture, the coarse and small grained even are mostly slight glittering, sometimes also glittering, the conchoidal always glittering, and sometimes strongly so, and the fine-grained uneven are glimmering.

B. Striated

B. *Striated Pyrites.*a. *Varieties of the Colour.*

- 2408 Striated Pyrites strongly inclining to *Steel grey*, on Calcareous Spar; from Goslar.
- 2409 Striated Pyrites slightly *tarnished* with the colour of *tempered steel*, with tabularly crystallized Baroselenite, on which Calcareous Spar Crystals occur, upon Galena which is mixed with Calcareous Spar, and to which Argillite adheres; from Derbyshire.
- 2410 Striated Pyrites *variegatedly tarnished* with the colours of a *Pidgeon's neck*, with Calcareous Spar and Sparry Iron Ore upon Quartz, which is mixed with some Galena; from the same place.
- 2411 Similarly *tarnished*, Striated Pyrites, with more beautiful, but at the same time paler colours, more inclining to *greenish*, upon a Quartz groupe; from Freudenstein.
- 2412 Extraordinarily beautiful, *Iridescently* tarnished, cellular Striated Pyrites, with a little intermixed Quartz; from the same place.

b. *Varieties of the External Shape.*

- 2413 *Reniform* Striated Pyrites, coated both above and below with a delicate groupe of Fluor Spar; from the same place.
- 2414 *Stalactitic* Striated Pyrites; from Goslar,

c. c. *The Regular External Shape.*a. *The Cube.*

- 2415 Striated Pyrites crystallized in minute, perfect Cubes, with some Octohædral Crystals, the former globularly accumulated, in Siderocalcite, with adhering very fine grained Sparry Iron Ore; from Köniz in Schwarzburg,

β. *Pyramids.*

β. *Pyramids.*

- 2416 Striated Pyrites crystallized partly in very small, partly in small Octohædrons, with the angles somewhat truncated, in a groupe, upon a compound of Siderocalcite, some Calcareous Spar and Argillite; from Grofskamsdorf.
- 2417 Striated Pyrites crystallized in the same manner, only the Pyramids are a little narrower, the Crystals implanted partly on, and partly penetrating one another, upon Calcareous Spar, with adhering Quartz; from Osnabrück.
- 2418 Striated Pyrites crystallized in a similar manner, but partly stellularly acumulated, partly also smaller, upon a groupe of sparry Iron Ore crystals; from Kamsdorf.
- 2419 Striated Pyrites crystallized in similar Pyramids, but two of their sides much broader than the two others, therefore terminating in an edge, aggregated in the form of cocks combs, with crystallized Calcareous Spar upon Galena, which is mixed with much Siderocalcite, and with adhering Argillite; from Derbyshire.
- 2420 Striated Pyrites crystallized in similar, very small, stellularly accumulated pyramids, with Calcareous Spar Crystals, some Quartz, as also Galena, upon Siderocalcite, to which Argillite adheres; from the same place.
- 2421 Striated Pyrites crystallized in much broader, similar Pyramids, therefore the whole obtains a tabular appearance, upon Quartz which is mixed with some Galena; from the same place.
- 2422 Striated Pyrites crystallized in similar, very broad Pyramids, cellularly intersecting each other, with a Siderocalcite groupe upon Massive Siderocalcite, and with adhering Argillite; from the same place.

γ. *Varieties of the Fracture.*

- 2423 A piece of Striated Pyrites of a *coarse*, partly parallel, partly diverging *striated* Fracture, upon a Fluor Spar groupe; from Johangeorgenstadt.

2424 Striated

- 2424 Striated Pyrites of a *delicate striated* Fracture, which in some places passes into the compact, upon Fluor Spar; from the same place.

Rem. In the former specimen, Granular Distinct Concretions also are observable, and in the latter, the transition into the following variety is conspicuous.

C. Hepatic Pyrites.

a. Varieties of the Colour.

- 2425 Hepatic Pyrites of an intermediate colour between *pale Metallic yellow* and *Steel grey*, upon Argillite; from Münsterappel.
- 2426 A little more strongly inclining to *Steel grey*, Hepatic Pyrites, with some inlaying common Martial Pyrites and Quartz; from Johangeorgenstadt.
- 2427 Hepatic Pyrites, very strongly passing into *Steel grey*, upon decayed Gneiss; from Freiberg.
- 2428 Hepatic Pyrites, variegatedly tarnished with *pigeon neck colours*, in Crystals, upon massive ditto, which is mixed partly with common Martial Pyrites, partly with a little compact Malachite; from Johangeorgenstadt.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2429 *Massive* Hepatic Pyrites in Quartz; from Freiberg,

b. b. The Particular External Shape.

- 2430 *Reticulated* Hepatic Pyrites with inlaying Crystals of brown Blende and sparry Iron Ore, as also with intermixed common Martial Pyrites, and some massive brown Blende; from the Kükschacht near Freiberg.

Rem. This is among the rarest varieties.

2431 *Dendritic*

- 2431 *Dendritic* Hepatic Pyrites upon a very soft Argillite; from Munsterappel.
- 2432 *Very slender tubuliform* Hepatic Pyrites, with drusy Galena and Baroselenite, upon Fluor Spar, as also adhering decomposed Gneiss; from the Halsbrücke.

Rem. The delicate Tubuli all run parallel, and also approach to the following external shape, only that they are disjoined from one another.

- 2433 *Pectinated* Hepatic Pyrites, upon Baroselenite, with adhering Gneiss; from Freiberg.
- 2434 *Botryoidal*, very much decayed Hepatic Pyrites, with intermixed Galena and Quartz; from Marienberg.
- 2435 *Imperfectly globular* Hepatic Pyrites; from the port of Revel in the Baltic Sea.
- 2436 *Large and indistinctly globular*, almost *nodular*, Hepatic Pyrites; from Johangeorgenstadt.
- 2437 *Minutely reniform*, partly *stalactitic* Hepatic Pyrites, with some Calcareous Spar; from Annaberg.
- 2438 *Tetrahedrally cellular* Hepatic Pyrites, strewed over with tabularly crystallized Baroselenite; from Streitberg, near Lux in Schwartzburg.

s. c. The regular External Shape.

a. Cubic.

- 2439 Hepatic Pyrites crystallized in very small perfect Cubes, upon tabular Baroselenite, with adhering Quartz; from Freudenstein.
- 2440 Hepatic Pyrites crystallized in minute similar Cubes, upon striated Pyrites with impressions, which is coated over with a little Iron Ochre; from Freiberg.
- 2441 Similarly crystallized, coralliformly, partly cellularly accumulated, Hepatic Pyrites, upon massive ditto; from Goslar in the Hartz.
- 2442 A very beautiful groupe of similar, minute cubes of Hepatic Pyrites, aggregated in rows, but afterwards, in such a manner, that they not only possess on the whole a pectinated appearance, as they run in the same direction, but also are united together

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at regular intervals, from whence *in detail*, originates a sheaflike appearance, upon Quartz which is mixed with much brown Blende, and with adhering Gneiss; from Freiberg.

β. Tabular.

- 2443 Hepatic Pyrites crystallized in very thin and very small, globularly accumulated, perfect hexhædral tables, with a Calcareous Spar and Quartz groupe, as also intermixed Galena, upon Argillite; from the Hartz.
- 2444 Hepatic Pyrites crystallized in somewhat thicker, small, similar tables, upon Galena, from the same place.
- 2445 Hepatic Pyrites crystallized in still thicker tables, mostly isolated, adhering by their extreme planes, with brown Blende Crystals and Quartz, as also with indurated Clay laying on the surface; from Freiberg.
- 2446 Hepatic Pyrites crystallized in very thick, similar tables of middling size, with a Quartz groupe, upon a compound of massive Quartz, black Blende, striated Pyrites and Galena, upon Gneiss; from the same place.

γ. Prismatic.

- 2447 Hepatic Pyrites crystallized in perfect hexhædral Prisms of middling size, with uneven lateral planes, with an overlaying Quartz groupe and some brown Blende; from Freiberg.

Rem. This crystal results from the exact accumulation of the tubularly crystallized Hepatic Pyrites, viz. when their lateral planes are regularly piled over one another.

δ. d. The Extraneous External Shells.

- 2448 A large Cornua Ammonis changed into Martial Pyrites; from Lörch in Würtemberg.

ε. Varieties

c. Varieties of the Fracture.

- 2449 A piece of Hepatic Pyrites of an *even* fracture, which however is somewhat rifted, and from thence has a rather uneven appearance; from Pretschendorf in the Erzgebirge.
- 2450 Hepatic Pyrites of *fine granular* distinct concretions, in compact brown Ironstone; from Kamsdorf.

d. Varieties of the Distinct Concretions.

- 2451 The same, of *extremely fine granular* distinct concretions, with intermixed common Martial Pyrites; from Johangeorgenstadt.

e. Transitions.

- 2452 A piece of Hepatic Pyrites which on one side passes into common Martial Pyrites, and on the other, is decomposed to Vitriol.

D. Capillary Pyrites.

- 2453 Massive Capillary Pyrites of a colour very much inclining to Steel grey, in which the delicately fibrous fracture may be observed, which at last passes into capillary crystals, in Calcareous Spar; from Wales.
- 2454 Capillary Pyrites very much inclining to Steel grey, crystallized in the most delicate hexahedral Prisms, stellularly aggregated, upon a Quartz groupe; from Schneeberg.
- 2455 Capillary Pyrites crystallized in shorter, but a little broader, similar Prisms, upon a compound of white Cobalt Ore and Fluor Spar, with superficial Nickel Ochre; from Annaberg.
- 2456 Capillary Pyrites crystallized in similar, but partly acicular and partly columnarly accumulated, Prisms, upon a Quartz groupe in a compound of massive Quartz, Opal and Calcedony; from the Adolphus stollen at Johangeorgenstadt.

- 2457 Capillary Pyrites crystallized in the same manner, but distinctly aggregated into an Octohedral Prism, upon a Quartz groupe, in other respects in the same compound; from the same place.

3. MAGNETIC MARTIAL PYRITES.

a. Varieties of the Colour.

- 2458 Pinchbeck-brown Magnetic Martial Pyrites, with Magnetic Iron-stone, Galena and Actynolite intermixed; from the Kieseche at Geier in the Erzgebirge.

b. Varieties of the External Shape.

- 2459 *Massive* Magnetic Martial Pyrites in Quartz; from Ottendorf, near Bischofswerde.
- 2460 Partly *massive* partly *coarsely disseminated* Magnetic Martial Pyrites, with Magnetic Ironstone, Galena, and a very large quantity of Actynolite intermixed; from the Kieseche at Geier.

Rem. In the first and last of these specimens, the internal lustre and fracture, as also the distinct concretions are perfectly distinct.

4. MAGNETIC IRON STONE.

Kirwan, 1st Tribe, 2d Spec.

A. Fibrous.

- 2461 Fibrous Magnetic Iron Stone passing from the light Steel grey into the bluish grey, which appears to be mixed with slightly Ironshot Calcareous Spar particles; from Sweden.

B. Common.

B. Common.

a. Varieties of the Colour.

- 2462 *Iron black*, slightly inclining to *Steel grey*, Magnetic Iron Stone, in Granular Limestone, with Siderocalcite mixed and some Hornblende; from the Schmalzgrube in the Erzgebirge.
- 2463 Magnetic Iron Stone slightly inclining to *brown*, mixed with much Hornblende; from Orbizau in Bohemia.
- 2464 Magnetic Iron Stone, passing from the *Iron black* almost into the *dark Cochineal red*, with a little adhering Steatites; from Norway.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2465 *Massive* Magnetic Iron Stone in very Ironshot Quartz; from Dorf Kemnitz near Saxe.
- 2466 *Coarsely and thickly disseminated* Magnetic Iron Stone in Trap, through which a slip of Granular Limestone traverses; from Arendahl in Norway.
- 2467 *Minutely disseminated* Magnetic Iron Stone in Hornstone-like Quartz; from one of the Danish Isles.
- 2468 Rather more *minutely disseminated* Magnetic Iron Stone in Calcareous Spar, which appears to be mixed with Chrysolite; from Arendahl.

Rem. The Chrysolite is of a light leek green colour, conchoidal fracture, almost quite transparent and hard.

- 2469 *Finely disseminated* Magnetic Iron Stone in compact red Iron Stone; from Liechtenberg in Bareuth.
- 2470 *Very finely disseminated* Magnetic Iron Stone in Quartz; from Bamblee in Norway.

b. b. The Particular External Shape.

- 2471 *Globular* Magnetic Iron Stone, in Ironshot Calcareous Spar; from Norway.

c. c. The Regular External Shape.

- 2472 A rhomboidal tetrahædral Prism of Magnetic Iron Ore, with the extremities broken off; from Bamblee.

c. Varieties of the Fracture.

- 2473 Magnetic Iron Ore of an extremely *fine grained even* fracture; from Dannemora in Sweden.

Rem. This affords there the best Iron.

- 2474 Magnetic Iron Stone of a *fine grained, uneven* fracture; from Hochmuth at Ehrenfriedersdorf.
- 2475 A piece of Magnetic Iron Stone whose fracture is intermediate between the *uneven* and *minute conchoidal*, upon Quartz and Actynolite; from Krebsberg at Ehrenfriedersdorf.
- 2476 A piece of Magnetic Ironstone of a somewhat *thick*, but in other respects perfectly *plain foliated* fracture, which approaches a little to the *slaty*; from Bamblee in Norway.

d. Varieties of the distinct Concretions.

- 2477 Magnetic Iron Stone of *small granular* distinct concretions, with Hornblende and Calcareous Spar; from Bamblee.
- 2478 A piece of Magnetic Ironstone of *small granular* distinct concretions, with a little Calcareous Spar; from Bamblee.
- 2479 Magnetic Iron Stone of *small granular* distinct concretions, which pass into the *fine granular*; from Lärmstadt in Norway.
- 2480 Magnetic Iron Stone of *fine granular* distinct concretions; from Dorf Kemniz.
- 2481 The same, of *very fine granular* distinct Concretions, with a little inlaying Hornblende; from Ehrenfriedersdorf.
- 2482 The same, of *extremely fine granular* distinct concretions,

tions, with Hornblende intimately intermixed, from the same place.

- 2483 A piece of Magnetic Iron Stone, with *extraordinarily fine granular* distinct concretions, which loose themselves entirely in the *compact*; from Sweden.

C. Magnetic Iron Sand.

a. Varieties of the Colour.

- 2484 *Dark Iron black* inclining to *blackish grey*, Magnetic Iron Sand; from Upper Lusatia.
- 2485 *Greyish*, almost *dark black* Magnetic Iron Sand; from the Shore of the Baltic.

b. Varieties with respect to the Grains.

- 2486 *Coarse granular* Magnetic Iron Sand; from Schandau in Upper Lusatia.
- 2487 Partly *small*, partly *fine granular* Magnetic Iron Sand; from Norway.
- 2488 *Extremely fine granular* Magnetic Iron Sand, mixed with common red Sand; from Oryn, near Presnáz in Bohemia.

5. SPECULAR IRON ORE.

A. Common Specular Iron Ore.

Kirwan, 1st Fam. 2d Tribe, 2d Spec.

a. Varieties of the Colour.

- 2489 *Moderately light Steel grey* Specular Iron Ore, coated with much Iron Ochre; from Altenberg.
- 2490 *Dark Steel grey* Specular Iron Ore, in *compact* Lime stone; from Osnabrück.
- 2491 *Pavonated* Specular Iron Ore with Martial Pyrites, in decayed Granite; from Altenberg.

b. Varieties

*b. Varieties of the External Shape.**a. a. The Common External Shape.*

- 2492 *Massive* Specular Iron Ore in a slightly marlaceous compact Limestone; from Osnabrück.
- 2493 Partly *coarsely*, partly *minutely disseminated* Specular Iron Ore, in a somewhat decomposed Sparry Iron Ore; from Augustaburg in the Erzgebirge.

*b. b. The Regular External Shape.**a. The Cubes.**a. a. Perfect.*

- 2494 Specular Iron Ore crystallized in perfect cubes, with pyramidal crystals of the same, in a groupe, in Hepatic Pyrites and much adhering decayed Rockstone; from Altenberg.

β β. With the Angles truncated.

- 2495 Specular Iron Ore crystallized in small cubes with the angles truncated, in a somewhat talcose Quartz; from the Catharina at Altenberg.
- 2496 Specular Iron Ore crystallized in very small, similar cubes, in Magnetic Ironstone, with some Quartz; from Norway.
- 2497 Specular Iron Ore crystallized in the same manner, accumulated in single buds, which are afterwards united to one another, in Compact Red Ironstone; from Framont in Lorraine.
- 2498 Specular Iron Ore crystallized in similar, minute, botryoidally accumulated, cubes, with a little Talc and massive Specular Iron Ore, upon compact red Ironstone.

γ γ. With the Edges truncated.

- 2499 Specular Iron Ore crystallized in very small cubes, the three opposite edges which form one of the angles, truncated,

truncated, but the remaining angles rounded, upon a Quartz groupe; from Altenberg.

β. Pyramids.

- 2500 Specular Iron Ore crystallized in very obtuse, double trihedral Pyramids, the planes of the one set on the edges of the other, and the angles of the common base obliquely truncated, partly of middling size, partly small, in massive ditto; from the Isle of Elba.
- 2501 Specular Iron Ore crystallized in the same manner, but accumulated in small cells, and somewhat thicker, in massive ditto, mixed with compact brown Iron Ore, and with adhering red ditto; from the same place.

γ. Lenses.

- 2502 Specular Iron Ore crystallized in small, common Lenses, which mostly stand upon their edge, with a little Baroselenite in compact red Ironstone; from Framont in Lorraine.
- 2503 Specular Iron Ore crystallized in similar, thinner Lenses, cellularly intersecting each other, in the same sort of Ore; from the same place.

δ. Tables.

- 2504 Specular Iron Ore crystallized in small, very distinct, thin, hexhedral tables, with some massive ditto in the same compound; from the same place.
- 2505 Specular Iron Ore crystallized in very small, hexhedral tables cellularly intersecting each other, with a Calcareous Spar groupe, upon massive specular Iron Ore, with adhering red Hæmatites underneath; from Freiberg.
- 2506 A groupe of moderately thick, similar tables of Specular Iron Ore, with extreme planes bevelled, in compact red Ironstone; from Framont in Lorraine.
- 2507 A groupe of very small, similar crystals of Specular Iron

Iron Ore, which are almost botryoidally accumulated, upon brown Hæmatites; from the same place.

c. Varieties of the Fracture.

- 2508 A piece of Specular Iron Ore with a *coarse grained uneven* fracture, in Trap, with adhering Ironshot Quartz; from Norway.
- 2509 A piece of Specular Iron Ore with an *uneven* fracture very much inclining to the *conchoidal*, in Hornblende Slate; from Lerrested in Norway.
- 2510 Specular Iron Ore with a *minute conchoidal* fracture, in magnetic Ironstone which is mixed with Quartz; from Bitzberg in Sweden.

d. Varieties of the distinct Concretions.

a. a. The Granular.

- 2511 Specular Iron Ore, of *small granular* distinct concretions, with much Arsenical and Martial Pyrites, as also some Quartz intermixed; from Altenberg.

b. b. The Columnar.

- 2512 A piece of Specular Iron Ore of *short*, moderately *thick* and *straight*, *columnar* distinct concretions; from the same place.
- 2513 Specular Iron Ore of *slender* and *scopiformly diverging columnar* distinct concretions, with Martial Pyrites in decomposed Granite; from the same place.

c. c. The Lamellar.

- 2514 A piece of Specular Iron Ore of *thick* and *curved* *Lamellar* distinct concretions, with magnetic Iron Ore and some Quartz intermixed; from Bitzberg in Sweden.
- 2515 *Thin*, and tolerably *straight* *Lamellar*, Specular Iron Ore, upon and in Sparry Iron Ore.
- 2516 Specular Iron with very *thin* *Lamellar* distinct concretions, in compact Limestone; from Osnabruck.

B. Micaceous

B. *Micaceous Iron Ore.**Kirwan, 3d Spec.*a. *Varieties of the External Shape.*a. a. *The Common External Shape.*

- 2517 Iron black *massive* Micaceous Iron Ore in Quartz ; from Siberia.
- 2518 *Superficial* Micaceous Iron Ore, partly also *disseminated*, in slips upon and in indurated Iron Ochre ; from Töbtschau in Hungary.

b. b. *The Regular External Shape.*

- 2519 Micaceous Iron Ore crystallized in perfect hexahedral tables closely attached to one another by their lateral planes, with *massive ditto* in Quartz ; from Siberia.

b. *Varieties of the Distinct Concretions.*

- 2520 *Coarse granular*, and at the same time, a *little curved Lamellar*, micaceous Iron Ore in Quartz, with adhering Ironshot Quartz ; from Hungary.
- 2521 Micaceous Iron Ore of *small granular* distinct concretions in Quartz ; from Markersdorf in Upper Lusatia.
- 2522 Micaceous Iron Ore of *fine granular* (very crumbling) distinct concretions ; from Johangeorgenstadt.
- 2523 Micaceous Iron Ore of *very thin lamellar*, and at the same time, somewhat imperfectly *columnar* distinct concretions, with Magnetic Iron Stone, in Fluor Spar which is mixed with some Talc ; from Altenberg.

Rem. This graduates into Specular Iron Ore.

6. RED IRON STONE.

Kirwan, 3d Tribe, 2nd Spec.

A. Red Scaly Iron Ore.

a. Varieties of the Colour.

- 2524 From the *Mortdoré* red, strongly inclining to *Steel grey*, Red Scaly Iron Ore; from Ehrenfriedersdorf in the Erzgebirge.
- 2525 Very beautiful and high *Mortdoré* red Scaly Iron Ore, with Copper Pyrites and Quartz abundantly intermixed; from Suhl in Henneberg.

b. Varieties of the External Shape.

- 2526 *Massive* Red Scaly Iron Ore upon compact red Iron Stone; from Iberg in the Hartz.
- 2527 Red Scaly Iron Ore as a very *thin overcast*, upon compact brown Iron Stone which in some places is decomposed completely into Iron Ochre; from Nassau.

B. Compact Red Iron Stone.

a. Varieties of the Colour.

- 2528 *Dark brownish red* Compact Red Iron Stone; from Eibenstock.
- 2529 *Steel grey* Compact Red Iron Stone, mixed with a little Calcareous Spar; from Schneeberg.

Rem. This appears a contradiction, but it is from the colour of the streak that Werner has denominated this species.

b. Varieties

*b. Varieties of the external Shape.**a. a. The Common.*

- 2530 *Massive Compact Red Ironstone*, with a little intermixed Quartz; from Töpliz in Bohemia.

b. b. The Particular.

- 2531 *Minute reniform Compact Red Ironstone*, with a little greenish clay; from Voigtland.

*c. c. The Regular.**a. Cubes.*

- 2532 A perfect Cube of middling size, very sharp-edged, and on two of the faces, with vestiges of smaller ones which had penetrated it; from Siberia.
- 2533 A smaller, similar, perfect Cube completely detached; from the same place.
- 2534 Three small Cubes of this sort, penetrating each other; from the same place.
- 2535 Smaller Cubes only about half so large, which are quite detached; from the same place.
- 2536 Four Cubes of the same size, penetrating each other, in one somewhat larger; from the same place.

β. Pyramids.

- 2537 A groupe of tetrahædral Pyramidal Crystals of Compact Red Ironstone, the Pyramids are very broad and have their Apices truncated, in the same, massive; from Baygorry in Navarre.

c. Varieties of the Fracture.

- 2538 Compact Red Iron-stone with a very *fine-grained uneven* fracture; from Johangeorgenstadt.
- 2539 Compact Red Iron-stone with an *even* fracture, which, however on the whole approaches somewhat to the *slaty*, with much intermixed Quartz and a little Hæmatites; from Bohemia.

d. Transitions.

- 2540 A piece of very much decomposed Compact Red Iron

Iron-stone making a *transition* into Iron Ochre ; from Schneeberg.

Rem. It exhibits at the same time, indistinct, concentric, thick lamellar, distinct concretions.

C. Red Hæmatites.

a. Varieties of the Colour.

- 2541 From the *brownish red*, very strongly inclining to the Steel grey, Red Hæmatites ; from Schneeberg.
- 2542 A piece of Red Hæmatites, whose colour holds the exact medium between *brownish red* and *steel grey* ; from Irrgang in Bohemia.
- 2543 Somewhat *lighter brownish red* Hæmatites ; from the same place.
- 2544 *Brownish red* Hæmatites which inclines but very slightly to Steel grey ; from Eibenstock.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2545 *Massive* Red Hæmatites, with the same, in angular pieces, in a very Ironshot Quartz, which as it were composes the cement of a Breccia ; from Upper Lusatia.

b. b. The Particular External Shape.

- 2546 *Cylindrically curved reniform* Red Hæmatites ; from Schwartzenberg in the Erzgebirge.
- 2547 *Large globularly reniform curved* Red Hæmatites ; from the same place.
- 2548 *Somewhat smaller reniform* Red Hæmatites, upon massive Compact Red Iron Stone, and Red Hæmatites which is mixed with some Quartz ; from Johangeorgenstadt.
- 2549 Still more *prominent curved reniform* Red Hæmatites ; from Schneeberg.
- 2550 *Minute reniform* Red Hæmatites, upon compact Red Iron Stone ; from Blankenberg in Voigtland.
- 2551 Moderately

- 2551 Moderately *small*, and at the same time *flat*, *reniform* Red Hæmatites, upon specular Iron Ore which is mixed with compact Brown Iron Stone; from Swartzenberg.
- 2552 Red Hæmatites which is intermediate between *reniform* and *botryoidal*, upon the same, massive, which is mixed with compact Red Iron Stone; from Johangeorgensstadt.
- 2553 *Botryoidal* Red Hæmatites in compact Red Iron Stone; from Schneeberg.

c. *Varieties of the Fracture.*

- 2554 Extremely delicate fibrous passing from the compact, Red Hæmatites, in Ironshot Quartz; from the same place.
- 2555 Very delicate and parallel fibrous Red Hæmatites; from Przibram in Bohemia.
- 2556 Delicate and parallel fibrous Red Hæmatites; from Eibenstock.
- 2557 Somewhat coarse fibrous Red Hæmatites; from Rotberg near Schwarzenberg.
- 2558 Very coarse, and somewhat diverging fibrous Red Hæmatites; from the same place.
- 2559 Scopiformly diverging coarse fibrous Red Hæmatites; from Schwarzenberg.
- 2560 Stellularly diverging fibrous Red Hæmatites, in compact red Iron-stone; from Schneeberg.

d. *Varieties of the Fragments.*

- 2561 A long splintery fragment of Red Hæmatites; from Schneeberg.
- 2562 A cuneiform fragment of Red Hæmatites; from Naila in Bareuth.

e. *Varieties of the distinct Concretions.*

- 2563 Very slender and imperfectly columnar Red Hæmatites; from Schneeberg.

2564 Somewhat

- 2564 Somewhat *thicker, straight columnar* Red Hæmatites; from Przibram in Bohemia.
- 2565 Very *thick columnar* Red Hæmatites; from Eibenstock.
- 2566 A very large piece of Red Hæmatites, whose very *thick columnar* distinct concretions graduate into *oblong granular*, on compact Red Iron Stone; from Schneeberg.
- 2567 Red Hæmatites of very *long granular* distinct concretions; from Eibenstock.
- 2568 Red Hæmatites of *moderately long granular* distinct concretions; from Bohemia.
- 2569 Red Hæmatites, of *large*, and a little *oblong, granular* distinct concretions; from Schneeberg.
- 2570 The same of *broader, large granular*, distinct concretions; from Bohemia.
- 2571 The same, of *shorter, large granular* distinct concretions; from Eibenstock.
- 3572 The same, of partly *large*, partly *coarse granular* distinct concretions, with a little adhering Quartz; from Schneeberg.
- 2573 Red Hæmatites of *coarse granular* distinct concretions, in compact red Iron Stone mixed with a little Quartz; from the same place.
- 2574 The same, of *small granular* distinct concretions, with Quartz; from the same place.
- 2575 Red Hæmatites of both *granular* and *reniformly curved Lamellar* distinct concretions; from Eibenstock.
- 2576 Red Hæmatites, with partly *thick*, partly, and principally *very much curved, Lamellar* distinct concretions; from Schneeberg.

7. BROWN IRON STONE.

Kirwan, 2nd Tribe, 3d Spec.

A. Brown Scaly Iron Ore.

- 2577 Brown scaly Iron Ore of a *Pinchbeck brown* colour, thickly overlaying Brown Hæmatites, with very much compact Brown Iron Stone underneath; from Kamsdorf.

2578 The

- 2578 The same, as a *thinner overcast*, with a sparry Iron Ore groupe, upon compact Brown Iron Stone; from Nassau Siegen.
- 2579 *Brown Scaly Iron Ore*, somewhat more strongly inclining to *Steel grey*, upon compact Brown Iron Stone, which underneath is decayed to Iron Ochre; from Klauenthal.

B. Compact Brown Iron Stone.

a. Varieties of the Colour.

- 2580 Compact Brown Iron Stone of a *clove Brown* colour, with overlaying Brown Hæmatites; from Kamsdorf.
- 2581 *Very Dark clove Brown*, inclining to *greyish black*, Compact Brown Iron Stone, with somewhat decayed red ditto, as also with Iron Ochre; from the same place.
- 2582 *Pinchbeck Brown* tarnished, Compact Brown Iron Stone, upon a compound of sparry Iron Ore, specular Iron Ore, and much Iron Ochre; from Norhausen in Treves.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2583 *Massive* Compact Brown Iron Stone, between Brown Hæmatites and Iron Ochre, with overlaying Scaly Iron Ore; from Suhl in Henneberg.
- 2584 *Disseminated* Compact Brown Iron Stone in Iron Ochre; from Saalfeld.
- 2585 *Superficial* Compact Brown Iron Stone upon Hornstone; from Schneeberg.

b. b. The Particular External Shape.

- 2586 *Stalactitic* Compact Brown Iron Stone, coated with Iron Ochre, from Naila in Bareuth.
- 2587 *Tubuliform* Compact Brown Iron Stone, upon Quartzzy Massive ditto; from Nassau Siegen.
- 2588 A piece of Compact Brown Iron Stone, which at the

P p

same

same time is *tubuliform* and *tetrahedrally cellular*; from Norhausen in Treves.

- 2589 *Cellular Compact Brown Iron Stone*, with *Arbustiform Manganese*; also in general very much coated with the latter and mixed with much *Iron Ochre*; from Bareuth.
- 2590 *Minute reniform Compact Brown Iron Stone*, upon very *Quartz* *Massive ditto*, with *Iron Ochre* underneath; from Schneeberg.
- 2591 *Compact Brown Iron Stone* in *imperfect spheroids*; from Bareuth.
- 2592 *Compact Brown Iron Stone*, with *hexhædral pyramidal Quartz impressions*; together with *crystallized Quartz* in small pyramids, upon *Massive Quartz*; from Chemnitz.

c. c. *The Regular External Shape.*

- 2593 A piece of a large, perfect *Cube* of *Compact Brown Iron Stone*, with a little overlaying *talç*; from Tyrol.
- 2594 *Compact Brown Iron Stone* *crystallized* in perfect cubes of a middling size, upon *cellular ditto*, which is mixed with *Quartz* and *Iron Ochre*; from the Berehof Mines, 15 Wersts from Catharinenburg in Siberia.
- 2595 *Compact Brown Iron Stone* *crystallized* in small, similar, perfect cubes, in *Massive ditto* which is mixed with much *Quartz*; from the same place.

c. *Varieties of the Fracture.*

- 2596 *Compact Brown Iron Stone*, with a tolerably *perfect even fracture*, but mixed with much *Brown Hæmatites*; from Nassau Siegen.
- 2597 *Compact Brown Iron Stone* of a *fine-grained uneven fracture*, upon and in *Quartz*; from Schlaiz.

C. *Brown Hæmatites.*a. *Varieties of the Colour.*

- 2598 Brown Hæmatites of an intermediate colour between *yellowish* and *bright clove Brown*, with enclosed sparry Iron Ore in a Quartz groupe; from Huttenberg in Carinthia.

Rem. A very rare variety.

- 2599 *Dark Liver Brown* inclining to *Steel grey*, Hæmatites, upon compact Brown Iron Stone; from Nassau Siegen.
- 2600 Somewhat *pavonated* Brown Hæmatites, upon compact Brown Iron Stone which is mixed with Iron Ochre; from Kamsdorf.
- 2601 Hæmatites *pavonated* in the most *lively* manner, upon compact Brown Iron Stone, with some Brown scaly Iron Ore; from the same place.

b. *Varieties of the External Shape.*

- 2602 Brown Hæmatites as an *overcast* upon botryoidal, partly dendritic, Manganese, which is seated upon compact Brown Iron Stone, with adhering Argillite; from Schwartzenberg.
- 2603 *Prominent spherically Reniform* Brown Hæmatites, upon Massive ditto which is mixed with compact Brown Iron Stone; from Bareuth.
Very small Reniform Brown Hæmatites, in some places *Dendritic*, upon a compound of compact Brown Iron Stone and a large quantity of sparry Iron Ore; from Kamsdorf.
- 2605 Brown Hæmatites whose external shape is intermediate between *botryoidal* and *dendritic*, with some Quartz, upon compact Brown Iron Stone; from Eibenstock.
- 2606 Brown Hæmatites whose external shape is *imperfectly botryoidal* and verging on the *dendritic*, coated with some Iron Ochre; from Unterscheule.

- 2607 *Minute botryoidal*, verging on the *Reniform*, Brown Hæmatites, with somewhat petrosiliceous compact Brown Iron Stone; from Huttenberg in Carinthia.
- 2608 *Moderately thick tubuliform* Brown Hæmatites, in compact Brown Iron Stone; from Saint Christopher in Württemberg.
- 2609 *Small tubuliform*, resembling the *Stalactitic*, Brown Hæmatites, upon compact Brown Iron Stone; from Norhausen in Treves.
- 2610 *Minute stalactitic* Brown Hæmatites, in a hollow imperfect Spheroid of petrosiliceous Compact Brown Iron Stone, which is also in some places very much decayed; from Schlaiz.

c. Varieties of the Distinct Concretions.

- 2611 Variegatedly tarnished Brown Hæmatites, in which not only *coarse* and *small granular*, but also *thick Lamellar* distinct concretions, and moreover the partly scopiform, partly stellularly diverging *fibrous* fracture is very well exhibited, with some Quartz; from Köniz in Schwartzburg.
- 2612 Brown Hæmatites of *thin and curved Lamellar* distinct concretions, in Iron Ochre; from Nassau.

8. SPARRY IRON ORE.

a. Varieties of the Colour.

- 2613 *Pale Isabella Yellow* Sparry Iron Ore, mixed with some Siderocalcite and a little Calcareous Spar; from Schneeberg.
- 2614 *Dark Isabella Yellow* Sparry Iron Ore, with intermixed Calcareous Spar, from the same place.
- 2615 Sparry Iron Ore of an intermediate colour between *Isabella Yellow* and *Liver Brown*, mixed with much Copper Pyrites; from the Hartz.
- 2616 *Clove Brown*, slightly inclining to *yellowish Brown* Sparry Iron Ore, with intermixed Argillite here and there; from Schneeberg.
- 2617 *Dark clove Brown* Sparry Iron Ore, in compact Brown Iron Stone which is mixed with some Barroselenite; from Kamsdorf.

2618 Very

- 2618 Very dark gold Yellow slightly inclining to Grey, tarnished Sparry Iron Ore, between Argillite; from Schneeberg.
- 2919 Somewhat pavenated Sparry Iron Ore, in Quartz; from Altenberg.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2620 Massive Sparry Iron Ore, with much intermixed Galena; from Iberg in the Hartz.
- 2621 Coarsely disseminated Sparry Iron Ore in Siderocalcite, with crystallized Sparry Iron Ore, Calcareous Spar and Copper Pyrites laying on the surface; from Schneeberg.

b. b. The Particular External Shape.

- 2622 Sparry Iron Ore with cubic impressions and Crystals of Copper Pyrites strewed over; from Kamsdorf.

c. c. The Regular External Figure.

a. Rhombs.

a. a. With plain Surfaces.

- 2623 Sparry Iron Ore crystallized in quite plain, small, perfect Rhombs, upon massive ditto; from Naila in Bareuth.
- 2624 A groupe of nearly half as large Rhombs of Sparry Iron Ore; from the same place.
- 2625 Sparry Iron Ore crystallized in very small, almost minute, similar Rhombs, upon Quartz which is mixed with some Galena; from Freiberg.

β. β. With curved Surfaces.

- 2626 Sparry Iron Ore crystallized in similar Rhombs with convex faces and of middling size, upon massive ditto wherein a little Siderocalcite lays; from Blankenburg in the Hartz.

2627 Sparry

- 2627 Sparry Iron Ore crystallized in similar Rhombs, all adhering by their edges; from Naila.
- 2628 A groupe of yellowish grey half so large, similar sparry Iron Ore Crystals, upon Copper Pyrites; from Lobenstein in Bareuth.
- 2629 Sparry Iron Ore crystallized in the same manner, very little smaller, and accumulated in rows, upon massive ditto; from Bendorf, on the Rhine.
- 2630 Sparry Iron Ore crystallized in very small similar Rhombs, coated with a Calcareous Spar groupe consisting of minute Crystals, upon Compact Brown Iron Stone; from Nassau.

β. Lenses.

α. α. Common.

- 2631 Sparry Iron Ore crystallized in common Lenses, small and irregularly implanted upon massive ditto mixed with some Argillite; from Schneeberg.
- 2632 Sparry Iron Ore crystallized in the same manner, but much smaller, attached to one another closely and in the form of roses, with a Quartz groupe upon massive Sparry Iron Ore; from Iberg in the Hartz.

β. β. Saddle Shaped Curved.

- 2633 A groupe of saddle shaped Lenses of sparry Iron Ore, with overstrewn Crystals of Copper Pyrites, upon a Quartz groupe which incloses a slip of Argillite; from the Hartz.
- 2634 Sparry Iron Ore crystallized in similar, still more strongly curved saddle shaped Lenses, upon a Quartz groupe, upon massive Quartz, with intermixed Arsenical Pyrites; from Altenberg.

Rem. These crystals have partly lost their water of crystallization.

γ. Pyramids.

- 2635 Sparry Iron Ore crystallized in very small perfect Tetrahædral Pyramids, in which the Crystals lay separately

separately but very abundantly, strewed over a very Ironshot Copper Pyrites, which is mixed with a moderate quantity of Fibrous Malachite and much Argillite; from the Hartz.

Rem. This specimen is uncommonly beautiful.

d. Varieties of the Distinct Concretions.

2636 Sparry Iron Ore of *large granular* distinct concretions, with crystallized ditto underneath; from Jauerlig in Carniola.

2637 A piece of Sparry Iron Ore of somewhat smaller, *large granular* distinct concretions; from the Siegen Stahlberg.

Rem. In both the foliated fracture with the Rhomboidal fragments, are very distinct.

2638 Sparry Iron Ore of *coarse granular* distinct concretions; from the same place.

2639 Sparry Iron Ore of *small granular* distinct concretions, mixed with the same crystallized; from Naila in Bareuth.

2640 *Very small granular* Sparry Iron Ore, with some Copper Pyrites and a little Galena, as also Quartz intermixed; from Freiberg.

2641 *Fine granular* Sparry Iron Ore, with some inlaying *small granular* ditto, and adhering compact Brown Iron Stone; from Baygorry in Lower Navarre.

2642 *Extremely fine granular*, passing compleatly into the compact, Sparry Iron Ore, with some overlaying calcareous Spar and Argillite; from the Hartz.

2643 Sparry Iron of *very thin and curved Lamellar* distinct concretions mixed with some compact Brown Iron Stone; from Huttenberg in Carinthia.

Rem. It occurs in this manner only extremely rarely.

9. ARGILLACEOUS IRON ORE.

Kirwan, 4th Tribe, 2d Spec.

A. Common Argillaceous Iron Stone.

- 2644 Steel grey Common Argillaceous Iron Stone, perforated and internally tubuliform; from Italy.
- 2645 Dark Clove Brown, very much inclining to Steel grey, Common Argillaceous Iron Stone.
- 2646 The same, a little more inclining to reddish, containing numerous impressions of *Conchilia*.
- 2647 Perfectly clove Brown ditto, with inlaying *Mytilites* which are streaked transversely.
- 2648 Clove Brown somewhat inclining to reddish ditto, with adhering Iron Ochre.
- 2649 Common Argillaceous Iron Stone, pretty strongly inclining to clove Brown. with small *Conchilia*.

Rem. The Specimens from 2645 to this, are all from the lower Ziegelberg, near Wehrau in Upper Lusatia.

- 2650 Dark Brick red Common Argillaceous Iron Stone, upon compact red Iron Stone; from Bohemia.
- 2651 Reddish grey Common Argillaceous Iron Stone, mixed with yellowish grey; from Raschau.
- 2652 Dark Ochre yellow Argillaceous Iron Stone, decomposed almost completely to Iron Ochre, in compact grey Limestone; from Voigtland.

B. Columnar Argillaceous Iron Stone.

- 2653 Very slender Columnar Brownish Red Argillaceous Iron Stone; from Hofcheniz in Bohemia.
- 2654 Some separate very slender similar columns; from the same place.

C. *Acinose*

C. *Acinose Argillaceous Iron Stone.*

- 2655 Massive Acinose Argillaceous Iron Stone, of fine granular distinct concretions; from Bohemia.

Rem. The fracture appears to be foliated, also numerous Quartz Slips, and others of compact Brown Iron Stone, traverse it.

- 2656 Massive extremely fine granular Argillaceous Iron Stone, but which in the fracture is completely thin slaty, in compact Brown Iron Stone; from Nassau.

D. *Pisiform Iron Ore.*

- 2657 Tolerably perfect Globular Pisiform Iron Ore, with Iron Ochre upon the surface; from Hesse.

E. *Reniform Iron Ore.*a. *Varieties of the External Shape.*

- 2658 Massive Reniform Iron Ore, with adhering bituminous wood; from Bohemia.
- 2659 Imperfectly Stalactitic, almost fusedlike (*Geflossene*) Reniform Iron Ore, apparently on the same Fossil; from the same place.

b. *Varieties of the distinct Concretions.*

- 2660 Reniform Iron Ore of very thin and curved Lamellar distinct concretions; from the same place.

Rem. In this also, the even, but in some places the fine splintery Fracture, is conspicuous.

- 2661 Reniform Iron Ore of thick Lamellar distinct concretions, in which the fracture is still more distinctly visible, upon bituminous wood; from the same place.

10. LOWLAND IRON ORE.

Kirwan. 2d Family, 4th Tribe, 2d Spec.

A. Swampy Iron Ore.

- 2662 Swampy Iron Ore, from the Steel grey passing into black, with adhering Iron Ochre on both sides; from Lower Silesia.
- 2663 Swampy Iron Ore of a somewhat brighter colour, partly perforated and completely mixed with Iron Ochre; from the same place.
- 2664 Dark clove Brown Swampy Iron Ore, here and there inclining to Steel grey, with intermixed sand grains; from Lower Silesia.

B. Meadow Iron Ore.

- 2665 Dark yellowish Brown Meadow Iron Ore in grains; from Silesia.
- 2666 A Blunt cornered piece of Meadow Ore, decayed on the surface to Iron Ochre; from Hungary.

11. BLUE MARTIAL EARTH.

Kirwan, 4th Spec.

- 2667 Blue Martial Earth of an intermediate colour between Indigo and small Blue; from Ekhardtsberg in Thuringia.
- 2668 Disseminated Blue Martial Earth a little more inclining to grey, in a sort of Cellular Lowland Iron Ore; from Doberch in Upper Lusatia.

12. YELLOW IRON OCHRE.

- 2669 Dark Orange Yellow Iron Ochre; from Silesia.
- 2670 Ochre Yellow, slightly inclining to reddish Iron Ochre, upon compact Brown Iron Stone; from Sagan.

2671 Perfe Al

- 2671 Perfectly Ochre yellow Iron Ochre, intimately mixed with some Quartz; from Schemnitz in Lower Hungary.
- 2672 Massive yellowish Brown Iron Ochre, in compact Brown Iron Stone; from Naila.
- 2673 Bright yellow Iron Ochre, as a thick overcast upon common argillaceous Iron Stone, in which the transition from one to the other is observable; from Hungary.

13. EMERY.

Kirwan, 11th Spec.

- 2674 Massive Emery of a bluish black colour, passing into greyish, with indurated Talc; from Ochsenkopf, near Schneeberg.
- 2675 Minutely disseminated Emery, with Vitreous Copper Ore in indurated Talc; from the same place.

14. PECHBLENDE.

*Sulphurated Uranite of Kirwan.**Uranite, Second Species.*

- 2676 Massive Pechblende of a greyish black colour, verging on the Iron black, with a large quantity of Galena; from Johangeorgenstadt.
- 2677 Almost dark black, slightly inclining to bluish, Pechblende, with Blue Copper Ore and over-laying Manganese, as also Iron Ochre; from Saalfeld.
- 2678 Coarsely disseminated Pechblende, in a compound consisting of a large quantity of Hepatic Pyrites with Galena; from Joachimstahl in Bohemia,

V. L E A D.

1. GALENA.

Kirwan, 9th Spec.

A. Common Galena.

Kirwan, 1st Family 9th Spec.

a. Varieties of the Colour.

- 2679 Very fresh and rather light, lead grey Common Galena, in Fluor Spar; from Gerstorf.
- 2680 Galena of a little darker colour, with adhering Hepatic Pyrites underneath, also with crystallized Siderocalcite on the side; from Schweinskopf, near Freiberg.
- 2681 Very beautifully pavonated Common Galena, between Quartz, in which sparry Iron Ore in rhomboidal Crystals occurs; from Freiberg.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2682 Massive Galena in Fluor Spar; from Gerstorf.
- 2683 Coarsely disseminated Galena, with some Martial Pyrites in decayed Gneiss; from Freiberg.
- 2684 Coarsely but smaller than the former, disseminated Galena in very crumbling Quartz, (Tyger Ore); from Hungary.
- 2685 Minutely disseminated Galena, with Massive ditto in Brown Blende and Quartz, as also Native Bismuth and Red Cobalt Ore; from Johangeorgenstadt.
- 2686 Superficial Galena, upon a compound of Quartz, inlaying Copper Pyrites, Galena, Hornblende and adhering Gneiss; from Freiberg.

b. b. The

b. b. The Particular External Shape.

- 2687 Very large *inhering granular* Galena, upon Quartz with impressions; from Freiberg.

Rem. In this it is distinctly visible, that these inhering grains were formerly crystals.

- 2688 Small *inhering granular* Galena with a little Baroselenite, strewed over on both sides of a thin plate of Quartz; from the same place.

- 2689 Small and *imperfectly Botryoidal* Galena, with much Hepatic Pyrites intermixed, and partially coated with Crystals of Siderocalcite, as also common Martial Pyrites; from Freiberg.

- 2690 Very beautiful *tubuliform*, slightly approaching to the *Arbustiform*, Galena; from Freiberg.

- 2691 *Reticulated* Galena, with much Hepatic Pyrites and some white Cobalt Ore intermixed; from Annaberg.

- 2692 *Still more distinctly reticulated*, partly slightly *veiny* Galena, on one side with adhering sparry Iron Ore, upon the other with Baroselenite; from Freiberg.

Rem. This is one of the rarest forms of Galena.

- 2693 Galena appearing as if partially *fused*, with a Siderocalcite grouse and Quartz Crystals, upon massive Siderocalcite which is mixed with much Blende and Copper Pyrites, altogether upon Gneiss; from Freiberg.

Rem. In this Specimen the lateral planes of the ancient crystals, to which this particular external shape owes its origin, are still visible.

- 2694 Galena, appearing as if the fusion had proceeded farther, in which however the former edges are also still somewhat visible, with Hepatic Pyrites upon black Blende, on which, underneath common Martial Pyrites in minute Crystals, occurs; from Freiberg.

- 2695 *Specular* Galena upon Calcareous Spar; from Stollberg in the Hartz.

- 2696 Somewhat indistinct, but mostly *tetrahedrally cellular*

- lular* Galena which is mixed with much Hepatic Pyrites; from Freiberg.
- 2697 Galena with *hexhedral pyramidal impressions*, in Baroselenite; from Freiberg.
- 2698 Galena, with *cubic*, moderately large *impressions*, upon cellular Quartz; from Freiberg.
- 2699 Galena with somewhat shallower, also smaller, *similar impressions*, upon massive Quartz on which cellular ditto occurs, which is also furnished with large impressions; from the same place.

c. c. The regular External Shape.

a. The Cube.

a. a. Perfect.

- 2700 A piece of a large, perfect Cube with several small ones penetrating it underneath, but throughout with drusy surfaces; from Freiberg.
- 2701 Perfectly cubic crystallized Galena of middling size, with a Fluor Spar groupe, upon Quartz, in which also coarsely disseminated Galena occurs; from Freiberg.
- 2702 A groupe of small perfect Galena Cubes, upon Fluor Spar; from the Isaac.
- 2703 Galena crystallized in partly small, partly very small Cubes implanted upon one another, with a little indurated Clay; from the Hartz.
- 2704 Galena crystallized in very small Cubes, with Baroselenite upon Fluor Spar, in which, partly massive, partly small cubic Galena occurs; from the Isaac.

β. β. Truncated.

- 2705 Galena crystallized in small Cubes with the angles very slightly truncated, with tabular Baroselenite upon Striated and Hepatic Pyrites, of which the former has impressions; from the same place.
- 2706 Galena crystallized in the same manner, a little more deeply truncated, upon Fluor Spar with some Baroselenite and adhering Gneiss; from Freiberg.
- 2707 Galena crystallized in similar Cubes partly of middling

- dling size, partly small, with the angles more deeply truncated, coated on the upper side with tabular Baroselenite, underneath with Ironshot Quartz; from Freiberg.
- 2708 A groupe in which the Cubes are proportionally still more deeply truncated, with overlaying Tale and Siderocalcite Crystals, upon massive Siderocalcite in which Argillite occurs; from the Hartz.
- 2709 Similarly crystallized Galena with angles quite deeply truncated, attached to one another without any particular arrangement, upon drusy Quartz, in which upon the underside, impressions, inherent granular Galena and foliated Baroselenite occur; from the Isaac near Freiberg.
- 2710 A groupe of similar Cubic Galena Crystals, which are not barely attached to, but penetrate one another, upon Quartz which is mixed with Fluor Spar; from the same place.
- 2711 Galena crystallized in the same manner, with angles still more deeply truncated, upon a compound of Calcareous Spar and Siderocalcite, with adhering Argillite underneath, on which there is superficial Martial Pyrites; from the Hartz.
- 2712 Galena crystallized somewhat smaller, but otherwise in the same manner, upon a thin Rind of Martial Pyrites, which again rests upon Foliated Baroselenite, a thick layer of Quartz succeeds, under which lastly, Fluor Spar appears, in which Galena is disseminated; from Freiberg.
- 2713 Galena crystallized in the same manner, but very deeply truncated, in which, however, the truncating planes do not yet touch, in a large groupe, upon Stratified Fossils which alternate as the foregoing; from the same place.
- 2714 A groupe of Galena Cubes, with angles so deeply truncated that the truncating planes nearly touch, forming a vein with some Crystals of Copper Pyrites, a little Yellow Blende and Quartz, to which Argillite adheres on both sides; from Scharfenberg.
- 2715 A groupe of Galena Cubes of middling size which are the perfect intermediate Crystal between the Cube and Octohædron, with much Hepatic Pyrites and

and Quartz, as also with adhering Gneiss; from Freiberg.

- 2716 Galena crystallized in the same manner, but small (half the size) with Sparry Iron Ore, and Siderocalcite Crystals upon Quartz, with adhering Grey Wacke; from the Hartz.

β. Double Tetrahedral Pyramids.

- 2717 Galena crystallized in small Octohedrons with the angles truncated, upon a Fluor Spar groupe; from Derbyshire.
- 2718 Galena crystallized in the same manner, but more deeply truncated, with some Martial Pyrites upon Siderocalcite; from the Hartz.

γ. Hexhedral Prisms.

α. α. Acuminated by four Planes.

- 2719 Galena crystallized in Hexhæral Prisms of middling size, acuminated by four planes, of which two are set on the opposite lateral planes, and the two others upon the lateral edges, with some adhering decomposed Gneiss; from Freiberg.
- 2720 Galena crystallized in a similar manner but small and drusically accumulated, with drusy Quartz; from Freiberg.

Rem. Herein also, Octohedrons with truncated angles present themselves.

β. β. Acuminated by three Planes.

- 2721 Galena crystallized in Hexhædral Prisms of middling size, acuminated by three planes which are set on the alternate lateral edges, upon white Cobalt Ore; from Johangeorgenstadt.
- 2722 Galena crystallized in similar, mostly somewhat compressed Prisms, in which the fusedlike (*Geflossene*) external form appears to be in the act of originating, with a large quantity of Hepatic Pyrites, upon a compound of Martial Pyrites, massive Galena, brown Blende and a little Quartz; from Freiberg.

c. Varieties

c. Varieties of the Superficies.

- 2723 Crystallized Galena with *drusy* lateral planes, with some massive ditto, much Sparry Iron Ore, some Siderocalcite and Quartz intermixed; from Freiberg.
- 2724 Partly cubic, partly Octohædral, crystallized Galena, with *smooth* specular surfaces, in drusy Quartz; from Freiberg.
- 2725 A piece of a large Galena Cube with *uneven* surfaces; from the Hartz.

Rem. The most remarkable thing here is, that the Sparry Iron Ore has crystallized within it, and the Galena itself internally, in spots graduates into compact Galena.

*d. Varieties of the Internal Lustre.**a. a. Uninterrupted Lustre.*

- 2726 Massive Galena, internally *strongly glittering*, in a compound of Baroselenite and Fluor Spar; from Gersdorf.
- 2727 Internally only *strong glimmering*, Galena (transition into Compact Galena); from Freiberg.

b. b. Interrupted Lustre.

- 2728 *Obliquely reflecting* Galena; from the Methusalem at Freiberg.
- 2729 A little, not nearly so strongly as in the foregoing, *obliquely reflecting* Galena, in Gneiss; from Freiberg.

Rem. This specimen shews that, as in the foregoing (which in the strictest sense is called obliquely reflecting) the oblique reflection originates simply from the interruption of the lustre, which in this is occasioned by intermixed Gneiss, in the other by intimately intermixed Hepatic Pyrites.

e. Varieties of the Fracture.

- 2730 Massive, perfectly *plain foliated* Galena, with a little Calcareous Spar and Siderocalcite, as also adhering Gneiss; from Freiberg.

R r

2731 Commonly

- 2731 Commonly curved foliated Galena, with much Copper Pyrites, upon Siderocalcite and adhering Argillite; from the Hartz.
- 2732 Strongly curved foliated Galena; from Freiberg.
- 2733 On one side Petaloidally curved foliated Galena, in Fluor Spar; from the Isaac.
- 2734 Galena passing from the foliated into the fibrous, with some Quartz and adhering Argillite; from the Hartz.

f. Varieties of the Fragments.

- 2735 Perfectly Cubic Galena fragments; from the Isaac.

g. Varieties of the Distinct Concretions.

a. a. The Lamellar.

- 2736 Galena of moderately thick, and irregularly intersecting each other, lamellar distinct concretions; from Nertschinsk in Siberia.
- 2737 Galena of rather thin, and almost parallel, plain lamellar distinct concretions; from the Hartz.
- 2738 Very thin and plain lamellar Galena, with Hepatic Pyrites, between Calcareous Spar; from the same place.
- 2739 Curved and parallel, thin lamellar Galena, with some Copper Pyrites in Quartz, and inclosed Compact Red Iron Stone; from Freiberg.

Rem. These four last varieties are commonly called Antimonial Galena, and Striped Ore.

b. b. The Granular.

- 2740 Massive Galena of coarse and oblong-angularly Granular distinct concretions, in Fluor Spar, with adhering decomposed Gneiss; from the Isaac.
- 2741 Massive Galena of very large, but common angularly Granular distinct concretions, in the same compound; from the same place,
- 2742 Galena of large and common angularly Granular distinct concretions, in Fluor Spar; from the same place.

Rem. Upon one side the Galena is only coarse Granular.

2743 Galena

- 2743 Galena of *coarse Granular* distinct concretions, with a little intermixed Quartz; from Freiberg.
- 2744 A piece of Galena of somewhat *smaller coarse Granular* distinct concretions principally, but mixed with much Copper Pyrites, upon Argillite; from the Hartz.
- 2745 *Small Granular* Galena, with intermixed Copper Pyrites and Compact Galena; from the same place.
- 2746 *Very small Granular* Galena in Quartz; with intermixed Martial Pyrites and adhering Gneiss; from Freiberg.
- 2747 A little *smaller Granular* Galena, with much Brown Blende and Calcareous Spar; from Swartzenberg.
- 2748 *Fine Granular* Galena in Baroselenite, with adhering, and slightly decomposed Gneiss; from Freiberg.
- 2749 Still a little *smaller fine Granular* Galena, with some Martial Pyrites; from Rammelsberg.
- 2750 *Very fine Granular* Galena in Martial Pyrites; from the same place.
- 2751 *Quite fine Granular* Galena, with small granular ditto in Quartz; from Bleisfeld in the Hartz.
- 2752 *Extremely fine Granular*, which very distinctly graduates into Compact Galena, with a little Copper Pyrites; from Gollar.

B. Compact Galena.

a. Varieties of the Colour.

- 2753 *Very fresh Lead grey* Compact Galena; from Zellerfeld in the Hartz.
- 2754 Galena, strongly inclining to *Steel grey*, between Argillite; from Klausthal.

b. Varieties of the External Shape.

- 2755 *Massive* Compact Galena, with some Quartz and Copper Pyrites; from Rammelsberg.
- 2756 *Specular* Compact Galena upon foliated Baroselenite; from the Hartz.

R r 2 c. Transitions.

c. Transitions.

- 2757 A piece of Compact Galena which evidently *graduates* into common Galena; from Goslar.

Rem. The fracture and internal lustre are particularly well displayed in No. 275.

2. BLUE LEAD ORE.

Kirwan, 3d Family, 9th Spec.

a. Varieties of the Colour.

- 2758 Rather dark bluish grey, but slightly inclining to Indigo blue, Blue Lead Ore, mixed with black ditto, and coated with Iron Ochre, upon Fluor Spar; from Tschoppau.
- 2759 Blue Lead Ore, whose colour actually inclines strongly to Lead Grey, similarly mixed; from the Dreifaltigkeit at that place.

b. Varieties of the External Shape.

- 2760 Blue Lead Ore crystallized in perfect, partly slender, partly thick, Hexhædral Prisms, coated with Iron Ochre, from the same place.
- 2761 Similarly crystallized, partly scopiformly aggregated, Blue Lead Ore, with Baroselenite and Earthy Lead Ore intermixed, coated with Iron Ochre, and adhering to Gneiss; from the same place.

c. Varieties of the Fracture.

- 2762 Blue Lead Ore with a *fine grained uneven* fracture, upon Fluor Spar, with Grey Earthy Lead Ore, and coated with Iron Ochre; from the same place.

BROWN LEAD ORE.

- 2763 Partly, massive, Brown Lead Ore, partly crystallized in mostly

mostly acicular Crystals, with White Lead Ore, in drusy Quartz; from the same place.

- 2764 Brown Lead Ore, crystallized in small, pretty long, perfect Hexhædral Prisms, with Baroselenite and Black Lead Ore, upon Gneiss; from the same place.

Rem. The colour in both is Clove Brown.

4. BLACK LEAD ORE.

Kirwan, 4th Family 9th Spec.

a. Varieties of the Colour.

- 2765 Black Lead Ore of a very light *greyish black* colour, with a little white ditto, in Baroselenite; from the Isaac.
- 2766 *Much darker greyish black* Lead Ore, with a rind of White Lead Ore, coated with Fluor Spar and Quartz; from the same place.

b. Varieties of the External Shape.

a. a. The Common.

- 2767 *Massive* Black Lead Ore, with the same, crystallized, in a compound of Ironshot Quartz and Crystals of White Lead Ore; from the same place.

b. b. The Particular.

- 2768 *Cellular* Black Lead Ore, with much Martial Pyrites and White Lead Ore intermixed, as also with adhering Quartz; from the same place.

c. c. The Regular.

- 2769 Black Lead Ore crystallized in Hexhædral Prisms, with acuminate extremities, the planes of which are set on the lateral Planes, the Crystals small and placed mostly parallel upon their edges, in a mixture of Ironshot

Ironshot Quartz and Crystals of White Lead Ore; from the same place.

Rem. The Crystals are in some places very distinct, which in this species is very rarely the case.

- 2770 Black Lead Ore crystallized in the same manner, but small, and in indistinct heaps, in the foregoing compound; from the same place.

c. Varieties of the Fracture.

- 2771 Massive Black Lead Ore, with an imperfect conchoidal Fracture, with the same, crystallized, in Ironshot White Lead Ore Crystals; from the same place.

5. WHITE LEAD ORE.

Kirwan. 1st Family, 2d Spec.

a. Varieties of the Colour.

- 2772 Bright, almost Silvery White Lead Ore, with superficial black particles (perhaps Manganese); from Bleisfeld near Zellerfeld.
- 2773 Pale greyish White Lead Ore, coated with Iron Ochre, with Quartz and grey Wacke; from the same place.
- 2774 Dark greyish White Lead Ore, upon Galena which is coated with grey earthy Lead Ore, and with adhering Gneiss; from Przibram in Bohemia.
- 2775 White Lead Ore, from the Silvery White strongly reflecting clove-brown, with some common Martial Pyrites and much Hepatic Pyrites upon Quartz; from Brakkenfeld in Durlach.

b. Varieties of the External Shape,

a. The Common External Shape.

- 2776 Massive White Lead Ore, between Quartz which is mixed partly with Martial Pyrites, partly with a little Galena and crystallized White Lead Ore, which has an overcast partly of blue Copper Ore, partly

- partly of Malachite, and mixed also with Copper Pyrites; from Zellerfeld in the Hartz.
- 2777 *Coarsely disseminated* White Lead Ore, in foliated Baroselenite; from Tschoppau.
- 2778 *Minutely disseminated* White Lead Ore, with some crystallized ditto, in a compound of Quartz and compact Malachite, with Earthy Lead Ore and Iron Ochre; from the Hartz.
- 2779 *Finely disseminated* White Lead Ore in compact brown Ironstone; from Nassau.

b. b. The Particular External Shape.

- 2780 *Large cellular* White Lead Ore, mixed with compact brown Ironstone and Iron Ochre; from the same place.

c. c. The Regular External Shape.

α. Hexhedral Pyramids.

- 2781 White Lead Ore crystallized in extremely slender acicular Hexhedral Pyramids, with Fibrous Malachite upon compact brown Ironstone; from Blei-feld at Zellerfeld.
- 2782 White Lead Ore crystallized in the same manner, but with this variation, that some Crystals are here and there implanted upon one another, upon Quartz.
- 2783 The same, not indeed more thickly accumulated, but scopiformly connected together here and there, with Malachite, upon compact brown Ironstone, upon Quartz.
- 2784 White Lead Ore in longer similar acicular Crystals, upon Quartz.
- 2785 White Lead Ore crystallized in shorter, but then a little thicker, scopiformly connected Pyramids, upon Quartz which is very much Ironshot, and holds a little Copper Pyrites intermixed.
- 2786 White Lead Ore crystallized in still a little thicker needles, without further accumulation, in a mixture of Fibrous Malachite, compact brown Ironstone and Quartz.

2787 White

- 2787 White Lead Ore crystallized in tolerably thick needles, which are again attached to one another at least by their extremities, upon compact Malachite.
- 2788 Pyramidal crystallized White Lead Ore, accumulated in still thicker, and at the same time longer, needles, upon Ironshot Quartz,
- 2789 White Lead Ore aggregated in thin columns, but crystallized in a similar manner, upon the same compound.
- 2790 Pyramidal crystallized White Lead Ore, accumulated in broad similar columns, in some places again closely attached to one another, coated with blue Copper Ore and compact Malachite, in Quartz which is mixed with much Galena.
- 2791 Pyramidal crystallized White Lead Ore, accumulated in similar columns, which again, are attached to and upon one another, with an extraordinary quantity of delicate similar Crystals, quite slenderly aggregated, associated as in the foregoing specimen, but in cellular Quartz.

Rem. The last mentioned Crystals are distinguishable by their dazzling white, from the others which are thickly overlaid with a brown Earth, perhaps Lead or Manganese.

- 2792 Similarly crystallized White Lead Ore, accumulated in notably thicker, similar, columns, penetrating each other, coated with much compact Malachite, upon Quartz.
- 2793 Crystallized White Lead Ore, accumulated in similar, broad columns, upon Ironshot Quartz, with adhering grey Wacke.
- 2794 Similarly crystallized White Lead Ore, but from two to four columns in many places are connected by their extremities, in and upon Ironshot Quartz.
- 2795 Similarly crystallized White Lead Ore, but all the columns of the entire groupe without exception, from six to ten together, are scopiformly accumulated, in and upon Compact Brown Ironstone.
- 2796 Pyramidal crystallized White Lead Ore, partly in very long, partly in extraordinary thick, similar scopiform accumulations, in and upon Compact Brown

Brown Iron Stone, and with adhering Ironshot Quartz.

β. Hexhedral Prisms.

α. α. Perfect.

- 2797 White Lead Ore crystallized in perfect, rather short hexhedral Prisms, in slightly Ironshot Quartz, upon other Quartz which is intimately mixed with Galena; from the same place.

Rem. In these prisms it is evident that they originate from the accumulation of the foregoing Crystals.

Rem. All these specimens, from No. 2788 to this, are from Zellerfeld in the Hartz.

- 2798 White Lead Ore crystallized in a little slenderer, similar Prisms, in which no vestige more of accumulation is to be discovered, but some Crystals of the following variety occur, upon Quartz with a little Copper Pyrites; from the Schwarzenberg district in the Erzgebirge.

β. β. Acuminated.

γ. Simply.

- 2799 White Lead Ore crystallized in hexhedral Prisms acuminated by four planes, which are set partly upon the lateral planes, partly on the lateral edges, in Quartz which in some parts is intimately mixed with Galena; from the same place.
- 2800 White Lead Ore crystallized in similar, but broad Prisms, closely attached to one another by their lateral planes, in Ironshot Quartz, with adhering decayed Argillite; from Brakkenfeld in Badendurlach.
- 2801 White Lead Ore crystallized in similar, but acicular, scopiformly accumulated, Prisms, in Ironshot Quartz; from the Hartz.
- 2802 Crystallized White Lead Ore in very small, similar Prisms, with coarsely disseminated ditto, in Galena and Lead Ochre; from the same place.

S s

2803 White

- 2803 White Lead Ore crystallized in still smaller, similar Prisms, which at the same time are broader, with Massive ditto and Galena, as also adhering Ironshot Quartz; from the same place.
- 2804 White Lead Ore crystallized in minute similar prisms, which form a drusy pellicle with acicular pyramids of the first variety, upon a compound of Galena, some decayed hepatic Pyrites and Ironshot Quartz; from La Croix in Lorraine.
- 2805 White Lead Ore crystallized in extremely small, similar prisms, which are strewed over the surface of fibrous Malachite, with adhering Iron Ochre; from Glücksfeld in the Hartz.

β. *With still further Modification.*

- 2806 White Lead Ore crystallized in Hexædral prisms acuminate by four planes, but the Apex obliquely and acutely truncated, upon Galena, with overlaying Lead Ochre; from Freiberg.

γ. *Tetrahedral Prisms.*

- 2807 White Lead Ore crystallized in acicular, perfect, Rhomboidal Tetrahedral Prisms, which appear to be acuminate only here and there casually, upon fibrous Malachite; from Bleisfeld at Zellerfeld.
- 2808 White Lead crystallized in a perfectly similar manner, but the crystals are broader and more abundantly connected together into a regular groupe, upon fibrous Malachite; from the same place.

δ. *Varieties of the External Lustre,*

- 2809 Crystallized White Lead Ore, extremely *strong glistening* with a *waxen Lustre*, upon Ironshot Quartz, in which Blue Lead Ore occurs; from the Isaac near Freiberg.
- 2810 White Lead Ore crystals exteriorly only *glistening*, partially coated with much Iron Ochre and some Ironshot Quartz, upon grey Wacke; from Zellerfeld.

2811 White

- 2811 White Lead Ore crystals in a groupe, externally only *slightly glistening* with a *silky Lustre*, upon Ironshot Quartz adhering to grey Wacke; from the same place.

Rem. The two last specimens consist entirely of the first crystallization, but No. 2809 of the second.

d. Varieties of the Fracture.

- 2812 Massive White Lead Ore with a *minute*, but *perfectly Conchoidal* fracture, with the same crystallized and black ditto, upon compact Baroselenite; from Tschopau near Marienberg.
- 2813 White Lead Ore whose fracture is intermediate between the *Conchoidal* and *uneven*, and exhibiting also here and there some *splinters*, with much crystallized ditto, as also blue Copper Ore and Malachite, in Quartz which is intimately mixed with Galena; from Zellerfeld.

Rem. In the former specimen the internal strong glistening Lustre, in the latter the glistening, is obvious.

6. GREEN LEAD ORE.

Kirwan 3d Spec.

a. Varieties of the Colour.

- 2814 Green Lead Ore of an intermediate colour between *Leek* and *Olive Green*, upon Ironshot Baroselenite; from Tschopau.
- 2815 From the *Olive Green*, slightly inclining to *Leek Green*, Lead Ore, upon Ironshot Quartz; from Friburg in Brisgaw.
- 2816 Tolerably *perfect Olive Green* Lead Ore, with intermixed Ironshot Baroselenite; from Tschopau.
- 2817 *Canary Green* Lead Ore, with *Dark Green* ditto, upon Quartz; from Friburg in Brisgaw.

b. *Varieties of the External Shape.*a. a. *The Common External Shape.*

- 2818 *Massive* and also *disseminated* Green Lead Ore, in a compound of Calcareous and Fluor Spars with much Galena; from the Lead Hills in Scotland.

b. b. *The Regular External Form.*a. *Prisms.*

- 2819 Green Lead Ore crystallized in perfect Hexhædral Prisms, with Massive ditto, upon a somewhat drusy cellular Quartz; from Friburg in Brisgaw.
- 2820 Green Lead Ore crystallized in similar, but somewhat broader Prisms, acuminated by six Planes, in and upon foliated Baroselenite; from Tschöppau.
- 2821 Green Lead Ore crystallized in similar Prisms, but the Apices deeply truncated, the Crystals of middling size, partly adhering to, and partly intersecting one another, so that they form a very large groupe which is eight inches long, by five broad; from the same place.

Rem. These crystals may be considered also as Hexhædral Pyramids with the extreme edges truncated.

b. *Pyramids.*

- 2822 Green Lead Ore crystallized in acute, very small Hexhædral Pyramids, partly Scopiformly accumulated, upon a Quartz groupe; from Friburg in Brisgaw.
- 2823 Green Lead Ore crystallized in minute similar Pyramids, which form a mossy covering upon a very Iron-shot indurated Clay; from Swarzenberg.

c. *Varieties of the Fracture.*

- 2824 A groupe of broken Green Lead Ore Crystals, in which

which the *conchoidal*, somewhat approaching to the *splintery* fracture is conspicuous, upon Lamellar Baroselenite; from Tschopau.

7. RED LEAD SPAR.

Kirwan, 8th Spec.

- 2825 Red Lead Spar in minute crystals, upon Quartz; from the Beresof Mines, near Catharinenburg in Siberia.

8. YELLOW MOLYBDENATED LEAD ORE.

Kirwan, 7th Spec.

a. Varieties of the Colour.

- 2826 Very pale Wax Yellow Molybdenated Lead Ore, in crystals, upon fine granular, nearly compact Lime Stone; from Bleiberg in Carinthia.
- 2827 Yellow Lead Ore of a dark Wax Yellow colour; from the same place.

Ans. In this, both massive and crystallized occur.

- 2828 Crystallized Yellow Lead Ore, of partly Wax, but partly Citron Yellow colour, upon the same yellowish grey compact Lime Stone; from the same place.

b. Varieties of the Regular External Shape.

u. a. Tables.

a. Tetrahedral.

- 2829 Yellow Lead Ore crystallized in small rectangular, perfect, Tetrahedral Tables, which all stand upon their extreme edges, upon the same sort of Stone; from the same place.
- 2830 Yellow Lead Ore crystallized in very small, cellular-ly.

ly united, similar Tables, upon compact Lime Stone ; from the same place.

- 2831 Yellow Lead Ore crystallized in very small, similar Tables, with their extreme Planes bevilled, upon Ironshot Lime Stone ; from the same place.

β. Octohedral.

- 2832 Yellow Lead Ore crystallized in Octohædral Tables with the extreme Planes bevilled, the crystals small, almost minute and partly cellularly connected ; from the same place.

δ. δ. Cubes.

- 2833 Yellow Lead Ore crystallized in perfect Cubes, with Faces somewhat convex, partly small, partly very small, but extraordinarily distinct, upon Massive, slightly Ironshot White Lead Ore.

c. Varieties of the Fracture.

- 2834 Crystallized Yellow Lead Ore with the crystals very much broken, in which the *foliated* fracture is distinctly discernible, upon Ironshot granular Lime Stone mixed with a little Calcareous Spar ; from the same place.

9. EARTHY YELLOW LEAD ORE.

Kirwan. 2d Family, 2d Spec.

A. Pulverulent Earthy Yellow Lead Ore.

- 2835 Ochre Yellow Pulverulent Earthy Lead Ore, upon Ironshot Quartz which is mixed with Martial Pyrites ; from Berefof in Siberia.
- 2836 The same, somewhat darker, upon Galena ; from the Lead Hills in Scotland.

B. Indurated

B. *Indurated Earthy Yellow Lead Ore.*

- 2837 Dark Sulphur Yellow Massive Indurated Earthy Yellow Lead Ore, upon fine-grained Galena; from Derbyshire.
- 2838 Indurated Earthy Yellow Lead Ore of a lighter sulphur Yellow colour, as an overcast upon White Lead Ore; from the Hartz.

10. *EARTHY GREY LEAD ORE.*

Kirwan, 2d Family, 2d Spec.

A. *Pulverulent Earthy Grey Lead Ore.*

- 2839 Pulverulent Earthy Grey Lead Ore upon White Lead Ore; from Tschopau.
- 2840 The same, of a Grey colour more inclining to White, as a somewhat thicker overcast upon Galena which is mixed with Quartz; from Freiberg.

A. *Indurated Earthy Grey Lead Ore.*

- 2841 Smoke Grey Indurated Earthy Grey Lead Ore, mixed with White ditto; from the Hartz.
- 2842 Pale Smoke Grey Indurated Grey Lead Ore, with adhering Pulverulent ditto, much overlaying White Lead Ore and fibrous Malachite; from the same place.
- 2843 Yellowish Grey Indurated Earthy Grey Lead Ore; from Johangeorgenstadt.

Rem. These two last specimens are both Massive, and exhibit the remaining external characters of this Species.

- 2844 Coarsely disseminated Indurated Earthy Grey Lead Ore, in a mixture of Quartz and Galena; from Zellerfeld.
- 2845 Minutely disseminated Earthy Grey Lead Ore, in Earthy White ditto; from Bleifeld at Zellerfeld.

11. *EARTHY*

II. EARTHY RED LEAD ORE.

- 2846 Dark Brownish Red Earthy Lead Ore, in a Massive piece; from the Erzgebirge.
 2847 Somewhat crumbling Earthy Red Lead Ore, out of the new Shaft Koll near Juliers.
 2848 Massive very dark Brownish Red Earthy Lead Ore, with overlaying indurated Clay; from the same place.

VIII. T I N.

1. TIN STONE.

Kirwan, 2d Spec.

a. Varieties of the Colour.

- 2849 Dark Black crystallized Tin Stone in Quartz, in which Arsenical Pyrites is disseminated, with adhering Gneiss; from Ehrenfriedersdorf.
 2850 Very dark Brownish Black Tin Stone; from the same place.
 2851 Somewhat lighter Brownish Black Tin Stone in Quartz, wherein a little Mica occurs; from the same place.
 2852 Tin Stone from the Brownish Black passing into dark Clove Brown, with inlaying Quartz and a little Lithomarga; from the same place.
 2853 Dark Clove Brown Tin Stone in Quartz, with some adhering Mica; from the same place.
 2854 Bright Clove Brown Tin Stone in Quartz, with adhering Gneiss; from Graupen in Bohemia.
 2855 Tin Stone, from the Clove Brown, passing into Reddish Brown; from Ehrenfriedersdorf.
 2856 Clove brown Tin Stone, strongly inclining to reddish brown, in Quartz on both sides, with some Wolfram and Arsenical Pyrites; from Altenberg.
 2857 Partly reddish partly dark yellowish Brown Tin Stone, upon an obscure variety of Gneiss; from Zinwald.
 2858 Tin Stone passing from the dark reddish brown thro' yellowish brown into wine yellow, with Arsenical Pyrites

rites in Calcareous Spar, which occurs in dark Clove Brown Tin Stone; from Schlakkenwald in Bohemia.

Rem. One of the rarest varieties.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 2859 *Massive* Tin Stone, with some crystallized ditto, as also Arsenical Pyrites, indurated Lithomarga and adhering Gneiss; from Marienberg.
- 2860 *Coarsely disseminated* Tin Stone, with *Massive* ditto, as also Arsenical Pyrites, in a compound of indurated Lithomarga, Quartz and Fluor Spar; from Geier.
- 2861 A little *smaller*, but still *coarsely disseminated* Tin Stone in Quartz, which is mixed with some Steatite, and with adhering Gneiss; from Ehrenfriedersdorf.
- 2862 Partly *coarse*, partly *minutely disseminated* Tin Stone in Quartz; from the same place.
- 2863 *Minutely disseminated* Tin Stone, with Mica in Quartz; from Altenberg.
- 2864 *Very minutely disseminated* Tin Stone in drusy Quartz; from Platt in Bohemia.
- 2865 *Finely disseminated* Tin Stone, with some Mica in decomposed Gneiss; from Marienberg.
- 2866 *Very finely disseminated* Tin Stone, with Mica in Quartz; from Altenberg.

Rem. The two last varieties in particular bear the trivial name of "Zwitten."

b. b. The Particular External Shape.

- 2867 *Specular* Tinstone upon Granite; from Geier.

*a. c. The Regular External Figure.**a. Tetrahedral Prisms,**a. a. Acuminated at their Extremities,*

- 2868 Tin Stone crystallized in rectangular Tetrahedral Prisms, acuminated at their extremities by four planes which are set on the lateral planes, upon decayed Gneiss in which some Fluor Spar occurs; from Ehrenfriedersdorf.

Rem. The Crystals are of middling size.

- 2869 Tin Stone crystallized in similar small Prisms, with massive ditto in Quartz and decomposed Gneiss, from the same place.

- 2870 Tin Stone crystallized in similar, but low tetrahedral Prisms, the acuminations at the extremities tolerably distinct; from Zinwald.

- 2871 Tin Stone crystallized in similar Prisms of middling size, with acuminating planes still larger in proportion to the lateral planes; from the same place.

- 2872 Similarly crystallized Tin Stone, but the Crystals are so connected in pairs by their acuminating planes, that they form Macles; from Ehrenfriedersdorf.

Rem. These are called Visirgräuben.

- 2873 Tin Stone crystallized in smaller Macles (Visirgräuben so called), with casual acuminating planes here and there; from the same place.

- 2874 Tin Stone crystallized in small similar Prisms, where many are united in the same manner; from Zinwald.

a. b. Afterwards Truncated,

- 2875 Tin Stone crystallized in rectangular tetrahedral Prisms acuminated by four planes, the apex afterwards

wards deeply truncated, partly of middling size, partly small, in a small groupe, upon Steatitical Quartz; from Ehrenfriedersdorf.

Rem. The Crystals are extraordinarily distinct, which is very rarely the case in this species.

γ. γ. The Angles Truncated,

- 2876 Tin Stone crystallized in rather low similar Prisms with the angles of the extremities of the Prisms deeply truncated, with some Lithomarga, very little Copper and Arsenical Pyrites, as also Massive Tin-stone, in Quartz; from the same place.

δ. δ. The Edges truncated.

- 2877 Tin Stone crystallized in similar Prisms, with truncated edges and moderately obtuse Apices, upon and in Steatites which is mixed with Quartz, in a slip between Gneiss; from the same place.
- 2878 Tin Stone crystallized in the same manner, partly afterwards macled, (Visirartig), upon a Rock Crystal; from Zinwald.

Rem. This aggregation arises always when the Prisms are incorporated by their acuminate planes under an acute Angle.

- 2879 Tin Stone crystallized in the same manner, somewhat more slightly truncated, and more acutely terminated, upon Quartz which is mixed with Steatites; from Ehrenfriedersdorf.
- 2880 Similarly crystallized Tin Stone in an entire groupe, the relative size of the Crystals less, with a little Talc and massive Tinstone upon Quartz, in which moreover Topaz occurs; from the same place.
- 2881 Tin Stone crystallized in a similar manner, but here and there with very low, therefore difficultly distinguishable Prisms, upon Quartz; from the same place.

Rem. This is the Transition into the Octohedron.

- γ. γ. With the Edges Bevelled.*
- 2882 Tin Stone crystallized in similar Prisms with the lateral edges bevelled, with a little Fluor Spar and much Steatites upon Quartz; from the same place.
- 2883 Similarly crystallized Tin Stone with deeper bevellings, and some intermixed Quartz, upon Gneiss, from the same place.
- 2884 Tin Stone crystallized in the same manner, but very deeply bevelled and obtusely acuminate, of which one acuminate plane is universally twice or thrice as large as the others, with a groupe of Rock Crystal upon a somewhat Ironshot Gneiss; from Zinwald in Bohemia.

Rem. This Tin groupe is likewise variegately varnished, and of middling size.

β. Double Tetrahedral Pyramids.

α. α. Perfect.

- 2885 Tin Stone crystallized in perfect Octohædrons, with Quartz and Fluor Spar upon massive Tinstone; from Ehrenfriedersdorf.
- 2886 A groupe of small, rather obtuse, similar Octohædrons of Tin Stone, upon Quartz in which some Arsenical Pyrites is disseminated; from Altenberg.
- 2887 Tin Stone crystallized in very small, indeed partly minute, similar Octohædrons, upon dark greenish grey, partly Ironshot Steatites; from Graupen in Bohemia.

β. β. With Truncations.

- 2888 Tin Stone crystallized in small, similar Octohædrons with the edges of their common base truncated, with some Quartz upon Gneiss; from Ehrenfriedersdorf.
- 2889 Tin Stone crystallized in the same manner, but a little more deeply truncated, upon the same compound, but

but underneath with much adhering Steatites; from the same place.

Rem. The Crystals are small but very distinct.

2890 Tin Stone crystallized in similar, here and there implicated Octohedrons with rather deep truncations, with Quartz which is mixed with much Lithomarga and again with adhering Quartz in which Arsenical Pyrites is disseminated; from the same place.

2891 Tin Stone crystallized in small similar Pyramids, with the edges of their common base deeply truncated, in a Rock Crystal groupe; from Zinwald.

2892 Tin Stone crystallized in somewhat smaller, similar Octohedrons, with Massive ditto upon Steatites which is mixed with yellowish Brown Mica; from Graupen in Bohemia.

2893 A groupe of similar Octohedral Crystals of Tin Stone, partly accumulated, in a compound of much Quartz, some Steatites, and a little Molybdena, as also Copper Pyrites; from Altenberg.

Rem. The Crystals are of middling size.

2894 Tin Stone crystallized in the same manner, but with such deep truncations, that in some, the gradation into the former crystallization is undoubted, upon Quartz with adhering decayed Gneiss; from Ehrenfriedersdorf.

γ. γ. And Broillings.

2895 Tin Stone crystallized in the foregoing manner, but with the edges of the common base bevilled and afterwards truncated, of middling size, the Crystals (Visirartig) incorporated by the edges of their common base, but a second time aggregated in rows; from Zinwald.

2896 Tin Stone crystallized in similar, rather smaller, mostly isolated, all maced, Octohedrons, in which one of the two bevilling planes is half the size of the other, in a groupe upon a compound of Quartz, Steatites,

Steatites and some Arsenical Pyrites, with adhering Gneiss; from the same place.

c. Varieties of the Lustre.

a. a. The External Lustre.

- 2897 Small and very small *strong glistening* Tin Stone Crystals, with some Lithomarga, in a Red indurated Clay; from Geier.
- 2898 A groupe of Octohædral crystallized Tin Stone with *glistening* surfaces, upon Steatites to which Gneiss adheres; from Ehrenfriedersdorf.

b. b. The Internal Lustre.

- 2899 A mutilated, internally *glistening* Tin groupe; from Zinwald.
- 2900 Massive, internally *slightly glistening* Tin Stone, with crystallized ditto and some Steatites in Quartz; from Ehrenfriedersdorf.

d. Varieties of the Fracture.

- 2901 Tin Stone with a moderately *coarse-grained uneven* fracture, with a little Mica on one side; from the same place.
- 2902 A fragment of a Tin Stone Crystal with a *minute conchoidal* fracture; from Schlakkenwald in Bohemia.

e. Varieties of the Distinct Concretions.

a. The Granular.

- 2903 Massive Tin Stone of *small granular* distinct concretions, with some Quartz; from Ehrenfriedersdorf.
- 2904 Massive Tin Stone with *very small* granular distinct concretions, in Quartz which is mixed with Mica and crystallized Tin Stone; from the same place.
- 2905 Massive Tin Stone of *fine granular* distinct concretions,

- tions, with very small Tin Crystals in Steatites; from Altenberg.
- 2906 Massive Tin Stone of *very fine* granular distinct concretions; from Ehrenfriedersdorf.
- 2907 *Extremely fine granular* Tin Stone in Quartz; from the same place.

g. The Lamellar.

- 2908 Tin Stone of very *thin* and *curved Lamellar* distinct concretions, in a compound of very much Quartz, Arsenical Pyrites, Massive Topaz, Steatites and a little Apatite; from Ehrenfriedersdorf.

Rem. This is a most remarkable specimen, as well on account of the Tin Stone itself, as of its combination with the other minerals.

f. Varieties of the Transparency.

- 2909 Some *quite transparent* Tin Crystals, with a little Lithomarga upon Tin Stone; from the same place.
- 2910 In a high degree *semi-transparent* crystallized Tin Stone, upon indurated Clay; from Platt in Bohemia.
- 2911 Partly *semi-transparent*, partly *strongly Translucid* Tin Stone, upon Quartz which is mixed with Steatites upon Gneiss; from Ehrenfriedersdorf.
- 2912 Crystallized Tin Stone *translucid at the edges*, with Massive ditto upon Quartz between Gneiss; from the same place.
- 2913 A perfectly *opaque* Tin groupe; from Zinwald in Bohemia.

Rem. The Tin Spar so called, belongs partly to some clearer transparent varieties of Tin Stone, and partly to a particular metal which will come in hereafter.

IX. BISMUTH.

1. NATIVE BISMUTH.

Kirwan, 1st Spec.

a. Varieties of the Colour.

- 2914 Beautiful *Silver White* Native Bismuth, in Calcareous Spar; from Schneeberg.
- 2915 *Silver White* slightly inclining to *Reddish*, Native Bismuth in Quartz; from Rappold.
- 2916 Still somewhat darker *Silver White* Native Bismuth, with White Cobalt Ore in Quartz which is mixed with Siderocalcite; from Schneeberg.
- 2917 Similar, partially *tarnished* slightly of an *Apple-Green* colour, Native Bismuth, with Grey Cobalt Ore in Quartz; from the same place.
- 2918 Native Bismuth, slightly *variegatedly tarnished* with the colours of a *Pidgeon's-neck*, in the same compound, with adhering Gneiss on both sides; from Johangeorgenstadt.
- 2919 A little darker, particularly with a larger proportion of *Violet Blue*; *variegatedly tarnished* Native Bismuth, in Quartz; from Schneeberg.
- 2920 *Variegatedly tarnished* Native Bismuth completely of a *Pidgeon-neck* colour, with Grey Cobalt Ore, to which, on one side Calcareous Spar, and on the other Argillite adheres; from Schneeberg.
- 2921 Very dark *pavonated*, almost the colour of *tempered Steel*, *tarnished* Native Bismuth, in Quartz, which is mixed with much Calcareous Spar and with adhering Argillite; from Schneeberg.

b. Varieties of the External Shape.

a. The Common External Shape.

- 2922 *Massive* Native Bismuth, with native Silver in Quartz; from Schneeberg.

2923 *Coarsely*

- 2923 *Coarsely disseminated* Native Bismuth in Quartz, in which exceeding fine granular Galena occurs; from Johangeorgenstadt.

Rem. These two metallic substances are rarely associated.

- 2924 *Minutely disseminated* Native Bismuth in a Petrofiliaceous Quartz; from the same place.
 2925 *Very minutely disseminated* Native Bismuth in Quartz; from Schneeberg.
 2926 *Thin superficial* Native Bismuth, with the same disseminated, in Hornstone, with adhering decomposed Gneiss; from Johangeorgenstadt.

b. b. The Particular External Shape.

- 2927 *Commonly reticulated* Native Bismuth in Hornstone, from the same place.
 2928 *Plumiformly streaked* Native Bismuth, in Quartz which is mixed with Hornstone; from the same place.
 2929 *Very delicately Plumiformly streaked* Native Bismuth, in Grey Cobalt Ore; from Joachimstahl in Bohemia.
 2930 *Imperfectly dendritically reticulated* Native Bismuth in Hornstone; from Johangeorgenstadt.
 2931 *Veiny* native Bismuth in Hornstone; from the same place.

c. Varieties of the Fracture.

- 2932 Native Bismuth whose fracture is intermediate between the *striated* and *broad foliated*; from Joachimstahl.
 2933 *Perfectly thin foliated* Native Bismuth, upon one side with adhering Quartz, and upon the other with Calcareous Spar; from Schneeberg.

d. Varieties of the distinct Concretions.

- 2934 *Small granular* Native Bismuth in Quartz; from Schneeberg.

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2935 Still

- 2935 Still *smaller granular* Native Bismuth, with White Cobalt Ore; from the same place.
- 2936 *Very small granular* Native Bismuth, in Quartz which is mixed with White Cobalt Ore, and on which is some Cobaltic incrustation; from Annaberg.
- 2937 Native Bismuth of *fine granular* distinct concretions, in Cobaltiferous Hornstone, with adhering Gneiss; from Johangeorgenstadt.
- 2938 Native Bismuth of *very fine granular* distinct concretions, which is mixed with small granular distinct concretions, in Quartz intermixed with some white Cobalt Ore; from Schneeberg.
- 2939 *Extremely fine granular* Native Bismuth, with very small granular ditto, in Quartz, in which some white Cobalt Ore is intermixed, and upon which is superficial Red Cobalt Ore; from Annaberg.

2. SULPHURATED BISMUTH.

Kirwan, 3d Spec.

- 2940 A piece of *Tin white* Sulphurated Bismuth, with a little intermixed Sparry Iron Ore; from Altenberg.
Rem. In this small specimen all the remaining external characters are tolerably well exhibited.
- 2941 Partly *massive*, partly *coarsely disseminated*, somewhat yellowish tarnished, Sulphurated Bismuth, in a compound of Quartz with much finely disseminated Tin Stone and some Mica; from the same place.

3. BISMUTH OCHRE.

Kirwan, 2d Spec.

- 2942 *Canary green* Bismuth Ochre, upon White Cobalt Ore; from Schneeberg, as are all the following specimens of this species.
- 2943 *Massive* Bismuth Ochre of an intermediate colour between Canary green and Sulphur yellow, in a compound of Quartz, much Native Bismuth and White Cobalt Ore.
- 2944 *Disseminated* similar Bismuth Ochre, with Martial Pyrites in Quartz, which is seated upon Argillite.
- 2945 Straw

- 2945 Straw yellow Bismuth Ochre, as a *thin overcast* upon crystallized Quartz.
- 2946 Somewhat *paler* straw yellow mixed with grey, Bismuth Ochre, in Quartz.
- 2947 *Minutely disseminated* Bismuth Ochre passing into yellowish white, in Cobaltiferous, and a little Iron-shot, Quartz.

X. Z I N C.

1. BLENDE.

Kirtwan, 2nd Spec

A. Yellow Blende.

a. Varieties of the Colour.

- 2948 Yellow Blende of a *sulphur yellow* colour, which however in some places verges on *olive green*, with much Galena, some Calcareous Spar, as also Quartz and Martial Pyrites; from Scharfenberg.
- 2949 Yellow Blende from the *sulphur yellow* passing into the *Hiacinth red*, with brown ditto and adhering decomposed Argillite; from Felsőbanya in Hungary.

b. Varieties of the External Shape.

- 2950 *Massive* Yellow Blende, with adhering Quartz in which some Galena is intermixed; from Scharfenberg.
- 2951 *Coarsely disseminated* Yellow Blende in Galena, which is coated above, with Siderocalcite, in which some Martial Pyrites occurs, and underneath with decomposed Gneiss; from the same place.
- 2952 *Minutely disseminated* Yellow Blende in Quartz, which is mixed with much fine grained Galena, and to which Porphyry with decomposed Felspar adheres; from Hungary.

c. *Varieties of the distinct Concretions.*

- 2953 Yellow Blende of *large granular* distinct concretions, upon decomposed Granite in which Galena is disseminated; from Scharfenberg.

Rem. In this specimen the *foliated* fracture also is very distinctly observable.

- 2954 Yellow Blende of *coarse* and *small granular* distinct concretions, in Quartz, in which some Grey Copper Ore and Galena are disseminated; from Hungary.

- 2955 Yellow Blende of *fine granular*, and here and there, still *small granular*, distinct concretions, in Quartz; from Scharfenberg.

B. *Brown Blende.*a. *Varieties of the Colour.*

- 2956 Blende of a *reddish brown* colour, in Quartz which is mixed with Fluor Spar and some fine grained Galena; from Freiberg.

- 2957 Similar Brown Blende of an *higher colour*, with some Copper Pyrites and Grey Copper Ore, in Quartz which is mixed with some Siderocalcite; from Zellerfeld.

- 2958 From the *bright reddish brown* passing into *Hiacinth red*, Brown Blende, in a compound of Quartz and Calcareous Spar, with intermixed Galena and Argillite; from Scharfenberg.

- 2959 *Brownish red* Blende mixed with yellow, in Calcareous Spar, with a little disseminated Galena, and some traversing Martial Pyrites; from the same place.

- 2660 *Variagatedly tarnished* Brown Blende, with much Martial Pyrites and some Galena in Quartz; from Kapnic in Transylvania.

b. *Varieties*

a. *Varieties of the External Shape.*a. a. *The Common External Shape.*

- 2961 *Massive* Brown Blende, in a compound of Fluor Spar and Quartz, with a little intermixed Galena; from Freiberg.
- 2962 *Coarsely disseminated* Brown Blende, with some Lithomarga, Martial Pyrites, and Calcareous Spar, upon Argillite; from the Hartz.
- 2963 *Minutely disseminated* Brown Blende, with Martial Pyrites and Black Blende, as also some Galena, in Red Ore of Manganese; from Kapnic.

b. b. *The regular External Shape.*a. *Prisms.*

- 2964 Brown Blende crystallized in rectangular tetrahedral Prisms acuminate, the acuminate Planes set on the lateral planes, of middling size, with a Quartz groupe upon Massive Brown Blende which is mixed with some Galena; from Transylvania.

a. *Pyramids.*

- 2965 Brown Blende crystallized in Octahedrons with the edges truncated, of middling size, upon Quartz with Calcareous Spar Crystals, adhering to Argillite; from the Hartz.
- 2966 Brown Blende crystallized in the same manner, but small, and without the edges being truncated, upon Quartz which is mixed with some Sparry Iron Ore; from the Hartz.
- 2967 Brown Blende crystallized in very small, similar Octahedrons, upon Gneiss; from Freiberg.
- 2968 Brown Blende crystallized in minute, similar Octahedrons, upon drusy Quartz; from Andreasberg.

c. *Varieties*

c. Varieties of the Distinct Concretions.

- 2969 A very beautiful large piece of Brown Blende, of large Granular distinct concretions which here and there seem to affect crystallization; from Transylvania.

Rem. In many places the perfect plain foliated fracture is likewise distinct.

- 2970 Brown Blende of coarse granular distinct concretions, with crystallized ditto upon a Sparry Iron Ore groupe, with crystallized Quartz, to which a compound of Sparry Iron Ore and Argillite adheres; from the Hartz.
- 2971 Brown Blende of small Granular distinct concretions, with Galena in drusy Quartz; from Scharfenberg.
- 2972 Brown Blende of very small Granular distinct concretions, with Galena upon Quartz; from Swarzenberg.

*C. Black Blende**a. Varieties of the Colour.*

- 2973 Dark brownish black, almost dark black Blende, with some Copper Pyrites and Quartz; from Freiberg.
- 2974 Pavenated Black Blende, with inlaying Quartz Crystals and some intermixed Copper Pyrites; from the same place.

b. Varieties of the external Shape.

- 2975 Massive Black Blende, with intermixed Brown ditto; from the same place.
- 2976 Minutely disseminated Black Blende in Calcareous Spar, with adhering decayed Gneiss wherein some Arsenical and Martial Pyrites occur; from the same place.
- 2977 Black Blende crystallized in small Octohædrons partly with the edges rounded off, aggregated in groupes, with very much Martial, and some Arsenical

- fenical Pyrites, as also very little Brown Blende and drusy Quartz underneath; from Freiberg.
- 2978 Black Blende crystallized in very small Octohedrons, in Quartz which is mixed with much Martial and Arsenical Pyrites, with adhering decayed Gneiss; from Freiberg.

d. Varieties of the distinct Concretions.

- 2679 Massive Black Blende of *coarse Granular* distinct concretions, with a traversing slip of Quartz and some disseminated Martial Pyrites; from Freiberg.
- 2980 Massive Black Blende of partly *coarse*, partly *small Granular* distinct concretions, on both sides of a slip of Quartz; from Freiberg.
- 2981 Black Blende with partly *fine Granular* distinct concretions, in *coarse* and *small Granular* ditto, which contains much Quartz and a little Copper Pyrites intermixed; from the same place.

2. CALAMINE.

Kirwan, 1st Sp.

a. Varieties of the Colour.

- 2982 Rather dark yellowish grey Calamine, mixed with much Iron Ochre; from Cologne.
- 2983 Somewhat paler yellowish grey Calamine, mixed with some Galena and Iron Ochre; from Olkutsch in Poland,
- 2984 Straw yellow Calamine, with Calcareous Spar intermixed, and Iron Ochre laying on the surface; from Herrenberg near Limburg.

b. Varieties of the External Shape.

b. b. The Common External Shape.

- 2985 Massive Calamine in Ironshot indurated Clay; from the same place.

2986 Coarsely

- 2986 *Coarsely disseminated* Calamine, with drusy ditto, as also some Galena; from Gresnick in Juliers.

b. b. The Particular External Shape.

- 2987 *Cellular* Calamine; from the same place.

c. c. The Regular External Shape.

a. Tables.

a. a. Perfect.

- 2988 Calamine crystallized in rectangular tetrahedral tables, which all stand upon their edge and are accumulated in a groupe; from Bleiberg in Carinthia.

A. A. Bevelled.

- 2989 Calamine crystallized in somewhat thicker, similar tables, bevelled at their extremities, in a large groupe, in some places globularly accumulated, overlaid with Iron Ochre; from Rabel, near Villach in Carinthia.
- 2990 A groupe of very small, similar, tabular Crystals of Calamine, upon Massive ditto; from the same place.
- 2991 Calamine crystallized in the same manner, botryoidally accumulated upon Massive ditto; from Aix-la-Chapelle.

β. Cubes.

- 2992 Calamine crystallized in very small perfect Cubes, in compact Brown Iron Stone in which some petrifications occur; from Cologne.
- 2993 Calamine crystallized in similar cubes with convex planes, in Massive ditto; from Poland.

c. Varieties of the Fracture.

- 2994 Calamine of a minute foliated fracture; from the same place.

- 2995 A piece of Calamine of a *very fine splintery* fracture, with much Iron Ochre.
- 2996 A piece of Calamine with a *coarse-grained earthy* fracture.

Rem. This seems to be decayed.

d. Varieties of the distinct Concretions.

- 2997 Calamine of *fine granular* distinct concretions, with some Iron Ochre; from Poland.
- 2998 The same, of *extremely fine granular* distinct concretions, with much Iron Ochre; from Iserlohe.

XI. ANTIMONY.

1. GREY ANTIMONIAL ORE.

Kirwan, 2d Spec.

A. Compact.

- 2999 *Sallow Grey* Massive Compact Grey Antimonial Ore, with some Quartz; from Braunsdorf.
- 3000 The same *coarsely disseminated*, somewhat darker and mixed with coarsely disseminated Sparry Iron Ore, in Ironshot Quartz; from Hungary.
- 3001 Partly *disseminated*, partly *superficial*, Compact Grey Antimonial Ore, in and upon Quartz; from Majurka.

B. Foliated.

- 3002 Fine Foliated Grey Antimonial Ore, of an indeed *light*, but yet *fresh*, Steel Grey colour, with some Quartz; from Nagaya.
- 3003 *Disseminated* Foliated Grey Antimonial Ore which approaches to the *striated*, in Quartz which is mixed with Red Antimonial Ore and some Argillite; from Braunsdorf near Freiberg.

X x

C. Striated.

C. *Striated.*a. *Varieties of the Colour.*

- 3004 Somewhat dark Steel Grey Striated Antimonial Ore; from Transylvania.
- 3005 Striated Grey, variegatedly tarnished, Antimonial Ore, upon Quartz which is mixed with Argillite; from Braunfsdorf.

b. *Varieties of the External Shape.*a. a. *The Common External Shape.*

- 3006 Massive Grey Antimonial Ore with Antimonial Ochre, in grey compact Lime Stone; from Transylvania.
- 3007 Coarsely disseminated Grey Antimonial Ore, in Quartz which is mixed with a little Copper Pyrites; from Braunfsdorf.

b. b. *The Regular External Figures.*

- 3008 Striated Grey Antimonial Ore crystallized in small Acicular Hexhædral Prisms, without further modification, in Quartz; from Kremnitz in Lower Hungary.
- 3009 Striated Grey Antimonial Ore crystallized in very slender Acicular Prisms, scopiformly accumulated, upon Quartz; from Braunfsdorf.
- 3010 Striated Grey Antimonial Ore crystallized in moderately thick Hexhædral Prisms, acuminate by six Planes which are set on the lateral Planes, and many of them in one scopiform aggregation; from Felsőbanya in Upper Hungary.
- 3011 Striated Grey Antimonial Ore crystallized in similar, but very much compressed, partly large Prisms, coated with much Iron Ochre; from Hungary.

c. *Varieties*

c. Varieties of the Fracture.

- 3012 *Very broad striated Grey Antimonial Ore, in Quartz; from Kremniz in Hungary.*
- 3013 *Narrow striated Grey Antimonial Ore, with a little overlaying Antimonial Ochre; from Felsöbanya.*
- 3014 *Very narrow striated Grey Antimonial Ore, in Quartz; from Braunfsdorf.*
- 3015 *Grey Antimonial Ore passing from the striated into the fibrous, in Quartz; from Freiberg.*

d. Varieties of the Distinct Concretions.

- 3016 *Grey Antimonial Ore of small granular distinct concretions; from Braunfsdorf.*
- 3017 *Grey Antimonial Ore of large granular distinct concretions, in Quartz, with some disseminated Martial Pyrites; from the same place.*
- 3018 *Large and very oblong granular Striated Grey Antimonial Ore, which therefore approaches the Lamellar, mixed with compact ditto in Quartz; from Auer-gne.*
- 3019 *Striated Grey Antimonial Ore of indistinctly columnar distinct concretions, in drusy Quartz; from Braunfsdorf.*

*D. Plumose Antimonial Ore.**Kirwan, 3d Spec.**e. Varieties of the Colour,*

- 3020 *Dark Steel Grey Plumose Antimonial Ore, in drusy Quartz; from Freiberg.*
- 3021 *Plumose Antimonial Ore of a somewhat brighter colour, upon decayed Martial Pyrites; from Stollberg in the Hartz.*

b. Varieties of the External Shape.

- 3022 *Massive Plumose Antimonial Ore*, upon Siderocalcite which is mixed with much Quartz and some Brown Blende, upon decayed Gneiss; from Freiberg.
- 3023 *Plumose Antimonial Ore* crystallized in extraordinarily delicate, capillary Prisms, quite thinly and separately strewed over drusy Quartz; from Freiberg.
- 3024 *Plumose Antimonial Ore* crystallized in somewhat stronger, yet still Capillary Prisms, which form an overcast upon Quartz which is mixed with some Martial Pyrites and Galena, with adhering Calcareous Spar underneath; from the same place.
- 3025 *Plumose Antimonial Ore* crystallized in shorter, and still a little stronger, capillary Crystals, with some Siderocalcite and Quartz upon Galena, to which some Gneiss adheres; from Freiberg.
- 3026 A scopiform aggregation of still somewhat stronger, similar, Plumose Antimonial Ore Crystals, in Quartz wherein some Blende is intermixed; from Braunsdorf.

2. RED ANTIMONIAL ORE.

*Kirawan 4th Spec.**a. Varieties of the Colour.*

- 3027 *Mortdoré red Antimonial Ore* in loose fibres; from Braunsdorf.
- 3028 *Mortdoré red Antimonial Ore*, tarnished reddish brown, in Quartz, with adhering Argillite; from the same place,

b. Varieties of the External Shape.

- 3029 *Massive Red Antimonial Ore*, upon and in a Quartz groupe, with adhering Argillite in which some Martial Pyrites occurs; from the same place.
- 3030 *Minutely disseminated Red Antimonial Ore*, with grey ditto in Quartz; from the same place.

3031 Red

- 3031 Red Antimonial Ore, partly crystallized in Capillary Prisma, with grey ditto in Drusy Quartz and adhering Argillite; from the same place.

3. ANTIMONIAL OCHRE.

- 3032 Straw yellow, partly massive Antimonial Ochre, but for the most part overlaying Crystals of grey Antimonial Ore, upon Hornstone which is traversed by small slips of Calcareous Spar; from Hungary.
- 3033 Pale lemon yellow Antimonial Ochre, among a small Quartz groupe in Massive Quartz, wherein much Grey Antimonial Ore is mixed; from Braunsdorf.
- 3034 Full lemon yellow Antimonial Ochre, upon a Quartz groupe, with adhering massive Quartz similarly circumstanced; from the same place.

4. LIGHT LAMELLAR SILVER ORE.

Kirwan, Silver. Spec. 5th.

a. Varieties of the Colour.

- 3035 Dark mortdoré red Light Lamellar Silver Ore, in separate Lamellæ; from the Dorothea, at Clausthal in the Hartz.
- 3036 Reddish brown Light Lamellar Silver Ore, upon a Quartz Groupe, with adhering Calciferous and Drusy Hornstone, mixed partly with Galena, partly with Grey Antimonial Ore; from the Hartz.

b. Varieties of the External Shape.

- 3037 A thick Overcast of light Lamellar Silver Ore, upon a compound of Calcareous Spar and Argillite; from the Dorothea at Clausthal.
- 3038 A thinner overcast of Light Lamellar Silver Ore, upon a compound of much Quartz and Galena, as also Grey Antimonial Ore; from the same place.
- 3039 A very slight overcast of Light Lamellar Silver Ore, upon

upon a Quartz groupe, and Argillite mixed with Galena and Quartz; from the Caroline at Clausthal in the Hartz.

XII. NICKEL.

1. KUPFERNICKEL.

Kirwan, 4th Spec.

- 3040 *Massive* Kupfernickel of a rather *pale Copper red* colour, with Sparry Iron Ore and Argillite; from Schneeberg.
- 3041 Kupfernickel of a somewhat *fuller* colour, in a compound of Baroselenite and decomposed Argillite; from Hohenstein.
- 3042 *Coarsely disseminated* Kupfernickel in Siderocalcite, which is mixed with Vitreous Copper Ore; from Mansfeld.
- 3043 *Minutely disseminated* Kupfernickel in a Cobaltiferous, somewhat drusy, Quartz; from Schneeberg.

2. NICKEL OCHRE.

Kirwan, 2nd Species.

- 3044 Nickle Ochre of a *full Apple Green* colour, upon White Cobalt Ore which is mixed with some drusy Quartz and Cobaltic Incrustation; from Annaberg.
- 3045 *Pale Apple Green* Nickel Ochre, upon Massive Kupfernickel, which is mixed with much Siderocalcite, as also White Cobalt Ore and crystallized Galena; from Freiberg.
- 3046 From the *Apple Green*, in some places strongly inclining to *Grass Green*, in others on the contrary, strongly inclining to *White*, Nickel Ochre, upon White Cobalt Ore, with Crystals of Antimoniated Silver Ore and some intermixed Quartz; from Annaberg.

XIII. COBALT

XIII. COBALT.

I. GREY COBALT ORE.

Kirwan, 1st Spec.

a. Varieties of the Colour.

- 3047 From the Steel grey, somewhat inclining to Tin White, Grey Cobalt Ore, with intermixed Quartz; from Schneeberg.
- 3048 Somewhat darker Steel Grey Cobalt Ore, mixed with much Quartz; from the same place.
- 3049 Very Dark Grey Cobalt Ore somewhat inclining to Brown, in Quartz on which is some superficial red Silver Ore, with Hepatic Pyrites; from Anna-berg.
- 3050 Somewhat variegatedly tarnished Grey Cobalt Ore with intermixed Quartz; from Joachimsthal in Bohemia.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 3051 Massive Grey Cobalt Ore, in a compound of Quartz and Hornstone, with a little adhering Argillite; from Schneeberg.
- 3052 Coarsely disseminated Grey Cobalt Ore in White ditto, which is mixed with Calcareous Spar and Quartz; from the same place.
- 3053 Finely disseminated Grey Cobalt Ore in Calcareous Spar, which assumes from thence a greyish black colour; from the same place.

Rem. Both Fossils are almost intimately intermixed with one another.

b. b. The Particular External Shape.

- 3054 Minutely botryoidal Grey Cobalt Ore, with much Native Bismuth and Hepatic Pyrites, also overlaying Cobaltic incrustation; from Johangeorgenstadt.
- 3055 Specular

- 3055 *Specular* Grey Cobalt Ore, upon Siderocalcite which is mixed with Argillite; from Schneeberg.
- 3056 *Reticulated* Grey Cobalt Ore, with overlaying Nickel Ochre and adhering Gneiss; from Annaberg.
- 3057 Rather more *delicately* *Reticulated* Grey Cobalt Ore, with intermixed Siderocalcite, and overlaying Nickel Ochre; from Annaberg.
- 3058 *Quite delicately* *Reticulated* Grey Cobalt Ore, with a little Siderocalcite, upon decayed Gneiss; from Freiberg.

c. *Varieties of the Fracture.*

- 3059 Massive Grey Cobalt Ore of an *even* fracture slightly approaching to the *conchoidal*, with traversing slips of Quartz; from Schneeberg.
- 3060 Similar Grey Cobalt Ore of an *even* fracture, which somewhat approaches the *fine-grained uneven*, in drusy Quartz which is mixed with some Hornstone, and with a little adhering Argillite; from the same place.
- 3061 Grey Cobalt Ore of a *fine-grained uneven* fracture, mixed with some Hornstone, and a little overlaying Nickel Ochre, between Argillite; from the same place.
- 3062 A piece of Grey Cobalt Ore with a *small grained uneven* fracture, with a little overlaying fibrous Red Copper Ore; from Annaberg.
- 3063 A piece of Grey Cobalt Ore with a moderately *coarse-grained uneven* fracture, in Quartz, with a little adhering Argillite; from Annaberg.
- 3064 A very sandy Grey Cobalt Ore, with Calcareous Spar and Baroselenite, as likewise overlaying Red Cobalt Ore; from Saalfeld.

2. WHITE COBALT ORE.

Kirwan, 2d Spec.

a. Varieties of the Colour.

- 3065 *Bright Tin White Cobalt Ore*, with much Grey ditto, and Native Bismuth in Quartz; from Schneeberg.
- 3066 *A little duller White Cobalt Ore*, with intermixed Martial Pyrites, foliated Baroselenite, and Violet Blue Fluor Spar; from Marienberg.
- 3067 *Yellowish tarnished, White Cobalt Ore*, with Quartz, and an adhering sort of Stone which extremely resembles Horn Blende Slate; from Modum in Norway.

Rem. Perhaps this may be Slaty Chlorite?

- 3068 *White Cobalt Ore variegatedly tarnished with pigeon neck colours*, with some Grey Cobalt Ore in Quartz; from Schneeberg.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 3069 *Massive White Cobalt Ore* in Baroselenite, with a little adhering decomposed Argillite; from the same place.
- 3070 *Coarsely disseminated White Cobalt Ore*, in a compound of Grey Cobalt, some Quartz, and Red Silver Ore, with overlaying Nickel Ochre; from Annaberg.
- 3071 *Minutely disseminated White Cobalt Ore*, in Quartz which is mixed with much Native Bismuth and superficial Red Cobalt Ore, as also adhering Argillite; from Schneeberg.
- 3072 *Very minutely disseminated White Cobalt Ore*, in Hornstone, with adhering Argillite; from the same place.
- 3073 *Minutely disseminated White Cobalt Ore*, with Native Bismuth in Quartz which is mixed with Siderocal-

cite Crystals, and to which Argillite adheres; from the same place.

3074 *Inbering Granular White Cobalt Ore, in Quartz; from Annaberg.*

3075 *Superficial White Cobalt Ore, upon Siliciferous Argillite; from Norway.*

b. b. The Particular External Shape.

3076 *Specular White Cobalt Ore upon Hornstone; from Annaberg.*

3077 *Reticulated, partly minute reniform, White Cobalt Ore, with much overlaying Nickel Ochre and adhering Quartz; from the same place.*

3078 *Delicately reticulated White Cobalt Ore, in Quartz; from Johangeorgenstadt.*

3079 *Amorphous White Cobalt Ore, with minute inlaying Crystals of Red Silver Ore, as also some crystallized Quartz; from Annaberg.*

a. a. The regular External Shape.

a. The Cube.

a. a. Perfect.

N. With plain Surfaces

3080 *White Cobalt Ore crystallized in perfect small Cubes, in a groupe, adhering upon and implicated in one another, with some Fluor Spar Cubes underneath; from Marienberg.*

3081 *White Cobalt Ore crystallized in very small similar Cubes, with Native Bismuth in Quartz; from Schneeberg.*

Q. With Convex Surfaces.

3082 *White Cobalt Ore crystallized in similar Cubes of middling size with very convex planes, with some adhering Sparry Iron Ore; from the same place.*

3083 *White Cobalt Ore crystallized in very small, botryoidally accumulated, similar Cubes, with reticulated*

lated Grey Cobalt Ore, some overlaying Nickel Ochre and much adhering Sparry Iron Ore; from Annaberg.

β. β. Truncated.

- 3084 White Cobalt Ore crystallized in Cubes with the angles slightly truncated, in drusy Quartz which is mixed with Native Bismuth; from Schneeberg.
- 3085 A groupe of cubically crystallized Cobalt Ore, but the angles somewhat more deeply truncated, with crystallized Sparry Iron Ore upon Argillite; from the same place.
- 3086 White Cobalt Ore crystallized in similar, very distinct Cubes, with the angles still more deeply truncated; from the same place.
- 3087 A small groupe of similar Cubes, but the truncating planes are very unequal in one and the same Crystal; from the same place.
- 3088 White Cobalt Ore crystallized in Cubes of middling size with angles very deeply truncated and drusy planes, upon massive ditto which is mixed with a little Calcareous Spar; from Schneeberg.

β. Pyramids.

- 3089 A groupe of Octohædral Crystals with angles deeply truncated, of White Cobalt Ore, upon sandy black Cobalt Ore which is mixed with Cobaltic incrustation; from Saalfeld.

γ. Prisms.

- 3090 White Cobalt Ore crystallized in very small, partly only small, hexhædral Prisms which are acuminated by four planes, with a little Native Bismuth and Martial Pyrites, as also Siderocalcite and Grey Cobalt Ore, in drusy Quartz; from Joachimstahl in Bohemia.

c. *Varieties of the Fracture.*

- 3091 Massive White Cobalt Ore with a *fine-grained uneven* fracture, in Baroselenite; from Schneeberg.
- 3092 A piece of White Cobalt Ore with a *small grained uneven* fracture, here and there mixed with much Baroselenite; from the same place.
- 3093 White Cobalt Ore of a *coarse grained uneven* fracture, but which in some places, seems to verge somewhat on the foliated, in crystallized Quartz; from Joachimstahl.

d. *Varieties of the distinct Concretions.*

- 3094 White Cobalt Ore of somewhat *indistinctly small granular* distinct concretions, with crystallized ditto, some Native Bismuth, and very much Quartz intermixed, upon decayed Argillite; from Schneeberg.
- 3095 Massive White Cobalt Ore of *very small granular* distinct concretions, with much crystallized ditto and overlaying Red Cobalt Ore; from Annaberg.
- 3096 A piece of White Cobalt Ore of *fine granular* distinct concretions, in Earthy Brown Cobalt Ore which is mixed with a little Cobaltic germinations and incrustation; from Saalfeld.
- 3097 White Cobalt Ore of *extremely fine granular* distinct concretions, with a large quantity of Galena, and adhering Quartz; from Annaberg.

3. BLACK COBALT ORE.

*Kirwan, 3d Spec.*A. *Loose.*

- 3098 Brownish Black, Loose, Black Cobalt Ore; from Saalfeld.

B. *Indurated.*

B. *Indurated.*a. *Varieties of the Colour.*

- 3099 *Bluish Black* Indurated Black Cobalt Ore, mixed with much Iron Ochre; from the same place.
- 3100 Indurated Black Cobalt Ore of a *greyish Black* colour, upon a decayed, somewhat slaty Sand Stone; from the same place.
- 3101 *Blackish Brown* Indurated Black Cobalt Ore, with decomposed Argillite; from Schneeberg.

b. *Varieties of the External Shape.*a. a. *The Common External Shape.*

- 3102 *Massive* Black Cobalt Ore, in Ironshot Indurated Clay, with a little disseminated Grey Copper Ore; from Saalfeld.
- 3103 *Moderately coarse disseminated* Black Cobalt Ore in Indurated Iron Ochre, with adhering decomposed Argillite on both sides; from the same place.
- 3104 *Minutely disseminated* Black Cobalt Ore in Quartz, with some Iron Ochre; from Schneeberg.

b. b. *The Particular External Shape.*

- 3105 Indurated Black Cobalt Ore, as a *very thin overcast* upon crystallized Calcareous Spar, with adhering *Massive ditto*, underneath which, an extremely thin Quartz crust occurs; from the same place.
- 3106 Indurated Black Cobalt Ore, as a somewhat *thicker overcast* upon a compound of some Brown Cobalt Ore, very much Iron Ochre and Blue Copper Ore; from Saalfeld.
- 3107 A *very thick overcast* of Indurated Black Cobalt Ore upon Ironshot Sand Stone; from the same place.
- 3108 *Extremely minute Botryoidal* Indurated Black Cobalt Ore, in a Calcareous Spar groupe, with much Grey Copper Ore and Copper Pyrites, some Blue Copper Ore

Ore and Malachite, in Ironshot Massive Calcareous Spar; from the same place.

- 3109 *Minute Botryoidal* Indurated Black Cobalt Ore, with some Iron Ochre; from St. Lorenz.
- 3110 *Imperfectly Reniform* Indurated Black Cobalt Ore, upon and in Quartz; from Schneeberg.
- 3111 *Veiny* Indurated Black Cobalt Ore in Sand Stone, which is mixed with Cobaltic incrustation; from Saalfeld.
- 3112 *Imperfectly Reniform* Indurated Black Cobalt Ore, mixed with much Iron Ochre; from the same place.
- 3113 *Minute Reniform* Indurated Black Cobalt Ore, Ironshot in the Rifts; from Glücksbrunn.
- 3114 *Minute Botryoidal* Indurated Black Cobalt Ore, coated with drusy Calcareous Spar, upon Martial Pyrites with adhering very Ironshot, Brown Cobalt Ore; from Saalfeld.

c. *Varieties of the Hardness.*

- 3115 A small piece of Indurated Black Cobalt Ore, which is *perfectly soft*; from Saalfeld.
- 3116 Indurated Black Cobalt Ore, which is intermediate between the *soft* and *half hard*, upon Sand Stone; from the same place.
- 3117 *Actually half hard* Indurated Black Cobalt Ore, upon Lamellar Baroselenite which is mixed with drusy Quartz; from Wittichen in Fürstenberg.

4. BROWN COBALT ORE.

Kirwan. 2d Family 3d Spec.

- 3118 *Perfectly Liver Brown* Cobalt Ore, with some superficial Blue Copper Ore; from Saalfeld.
- 3119 *Dark Liver Brown* passing into *Black* Cobalt Ore; from the same place.

5. YELLOW

5. YELLOW COBALT ORE.

Kirwan. 3d Family, 3d Spec.

- 3120 From the *Yellow*, very much inclining to *Grey*, Cobalt Ore, which is mixed with some *Black* ditto; from *St. Lorenz*.
- 3121 *Ochre Yellow*, yet somewhat indistinctly, much inclining to *Greyish*, Cobalt Ore, upon *Black* ditto, under which fibrous *Calcareous Spar* occurs; from the same place.
- 3122 From the *yellowish Grey* passing into *dark Ochre Yellow*, Cobalt Ore, upon *Brown* ditto passing into *Black*; from the *St. Lorenz*.

6. RED COBALT ORE.

Kirwan, 4th Spec.

A. Cobaltic Incrustation

a. Varieties of the Colour.

- 3123 *Very Dark Peach Blossom Red* Cobaltic Incrustation, upon an *Ironshot Quartz* Matrix; from *Schneeberg*.
- 3124 *Full Peach Blossom Red* Cobaltic Incrustation, upon decomposed *Granite*; from *Fürstenberg*.
- 3125 *A little paler Peach Blossom Red* Cobaltic Incrustation with *Calcareous Spar*, upon *Hornstone*, wherein *Grey Cobalt Ore* seems to be intimately mixed; from *Schneeberg*.
- 3126 *Pale Peach Blossom Red* Cobaltic Incrustation, upon *Quartz* which is mixed with native *Bismuth*; from the same place.
- 3127 From the *Peach Blossom Red* passing into *reddish White*, Cobaltic Incrustation, upon *White Cobalt Ore* which is mixed with much *Martial Pyrites*; from *Freiberg*.

Rem. A very rare appearance there.

b. Varieties

b. *Varieties of the External Shape.*a. *The Common External Shape.*

- 3128 *Massive* Cobaltic Incrustation upon Quartz which is mixed with Grey Cobalt Ore; from Schneeberg.
- 3129 *Coarsely disseminated* Cobaltic Incrustation in decomposed Argillite; from Schneeberg.
- 3130 *Minutely disseminated* Cobaltic Incrustation, in an Ironshot mixture of Quartz, much Calcareous Spar, and some White Cobalt Ore, as also with a little adhering Black Cobalt; from St. Lorenz.
- 3131 *Superficial* Cobaltic Incrustation, upon decomposed Argillite; from Schneeberg.

b. *The Particular External Shape.*

- 3132 *Extremely minute Botryoidal* Cobaltic Incrustation, upon a very Ironshot Brown Cobalt Ore, with some adhering Argillite; from Saalfeld.
- 3133 *Overlaying* Cobaltic Incrustation, in smaller, similar, *imperfectly Botryoidal* particles, upon a compound of Quartz, with Grey Cobalt Ore and White ditto; from Schneeberg.

B. *Cobaltic Germinations,*a. *Varieties of the Colour.*

- 3134 *Moderately light Peach Blossom Red* Cobaltic Germinations, upon a Fluor Spar groupe, with some Martial Pyrites and adhering Hornstone, wherein Siderocalcite occurs intermixed; from Schneeberg.
- 3135 *A little darker Peach Blossom Red* Cobaltic Germinations, upon Lamellar Baroselenite and Ironshot Brown Cobalt; from Saalfeld.
- 3136 From the *Peach Blossom Red* slightly inclining to *Crimson Red*, Cobaltic Germinations, upon Lamellar Baroselenite,

- Baroselenite which is mixed with Hornstone; from Schneeberg.
- 3137 *Crimson Red* Cobaltic Germinations, with some Cobaltic Incrustation and Grey Cobalt Ore, as also adhering Yellow Cobalt Ore; from Saalfeld.
- 3138 *Somewhat darker Crimson Red* Cobaltic Germinations, in drusy Quartz; from Rappold.
- 3139 *Very dark Crimson Red* Cobaltic Germinations, upon Argillite which is mixed with Baroselenite; from Schneeberg.
- 3140 *Cochineal Red* Cobaltic Germinations, in drusy Quartz, with intermixed Grey and White Cobalt Ores; from Schneeberg.
- 3141 *Dark Cochineal Red* Cobaltic Germinations, with some Baroselenite, much Grey Copper Ore, a little Blue Copper Ore and Green Copper, upon Hornstone; from Saalfeld.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 3142 *Massive* Cobaltic Germinations, in a very Ironshot Hornstone which is mixed with Malachite and Blue Copper Ore, as also Brown Cobalt Ore; from Saalfeld.
- 3143 *Partly coarsely, partly minutely disseminated*, here and there also *superficial*, Cobaltic Germinations, in and upon drusy Quartz; from Rappold.
- 3144 *Moderately thick superficial* Cobaltic Germinations, upon similar Quartz; from the same place.
- 3145 *Very thin superficial* Cobaltic Germinations, upon Lamellar Baroselenite which presents itself in a compound of very Ironshot Cobaltiferous Hornstone, mixed with some Grey Copper Ore, some Blue ditto, and a little Ironshot Mountain Green; from Saalfeld.

b. b. *The Particular External Shape.*

- 3146 *Minute Botryoidal Cobaltic Germinations, in Yellow Cobalt Ore which is mixed with much Lamellar Baroselenite and some Grey Copper Ore; from Saalfeld.*

a. c. *The Regular External Shape.*a. *Tables.*

- 3147 *Cobaltic Germinations crystallized in very small, rectangular tetrahedral tables with the extreme Planes bevelled, upon and in a Siderocalcite groupe, which presents itself in an Hornstone mixed with much Grey Copper Ore; from the same place.*
- 3148 *Similarly crystallized Cobaltic Germinations, but in some places minute and scopiformly accumulated, in Siderocalcite which occurs in the before mentioned Hornstone; from the same place.*

Rem. In both, the Crystals have a kind of prismatic appearance.

β. *Prisms.*

- 3149 *Cobaltic Germinations crystallized in small, acicular, perfect, tetrahedral Prisms, in drusy Quartz, with a little Argillite underneath; from Rappold.*
- 3150 *Cobaltic Germinations crystallized in similar, rather small Prisms, here and there singly strewed over and in drusy Quartz; from the same place.*
- 3151 *Cobaltic Germinations crystallized in the same manner, partly smaller, partly scopiformly accumulated, in drusy Quartz; from the same place.*
- 3152 *Cobaltic Germinations crystallized in very small, globularly accumulated, similar Prisms, upon a compound of Lamellar Baroselenite and some sandy Black Cobalt which is mixed with Cobaltic Incrustation; from Saalfeld.*

3153 *Cobaltic*

- 3153 Cobaltic Germinations crystallized in very small Prismatic Crystals, accumulated in similar, small Globules, upon and in a Calcareous Spar groupe which presents itself in an Hornstone mixed with Siderocalcite; from the same place.
- 3154 Cobaltic Germinations crystallized in minute similar Prisms, which form a drusy Pellicle, in a compound of Lamellar Baroselenite with some Yellow Cobalt Ore, Copper Pyrites and Blue Copper Ore; from the same place.
- 3155 Similarly crystallized Cobaltic Germinations, but the Crystals much more abundantly implanted upon one another, in Hornstone which is mixed with Siderocalcite; from the same place.

c. Varieties of the Fracture.

- 3156 *Stellularly diverging broad striated* Cobaltic Germinations, upon drusy Quartz; from Rappold.

Rem. In this specimen the transition from the Striated Fracture into the Prismatic External Figure, is obvious.

- 3157 *Narrower and scopiformly diverging striated* Cobaltic Germinations, upon Cobaltiferous Hornstone mixed with Quartz; from Schneeberg.
- 3158 *Rather narrower, also similarly striated* Cobaltic Germinations, in drusy Quartz; from the same place.
- 3159 *Narrow striated* Cobaltic Germinations, in the same compound; from the same place.
- 3160 *Very narrow striated, stellularly diverging* Cobaltic Germinations, on the same sort of Stone; from the same place.
- 3161 *Extremely fine and stellularly diverging striated* Cobaltic Germinations, upon a very Cobaltiferous Argillite; from Saalfeld.

d. Varieties of the Distinct Concretions.

- 3162 Cobaltic Germinations of *coarse*, indeed *neatly large*, granular distinct concretions; from Rappold.

Rem. This occurs extremely rarely.

- 3163 Partly *coarse*, partly *small granular* Cobaltic Germinations, upon and in drusy Quartz; from the same place.

- 3164 Partly *small*, partly *very small granular* Cobaltic Germinations, in the same, somewhat Ironshot, drusy Quartz; from the same place.

XIV. MANGANESE.

1. GREY MANGANESEAN ORE.

Kirwan, 1st Family, 2d Spec.

a. Varieties of the Colour.

- 3165 Grey Manganesean Ore of a tolerably perfect *Steel Grey* colour, with some Iron Ochre; from Bareuth.
- 3166 *Dark Steel Grey* Manganesean Ore, in Lamellar Baroselenite; from Ilfeld in the Hartz.

*b. Varieties of the External Shape.**a. a. The Common External Shape.*

- 3167 *Massive* Grey Manganesean Ore, in Lamellar Baroselenite; from the same place.
- 3168 *Diffeminated* Grey Manganesean Ore, in a compound of compact Brown Iron Stone and Black Manganesean Ore; from Voigtland.

b. b. The Particular External Form.

- 3169 *Dendritic* Grey Manganesean Ore, upon compact Brown

Brown Iron Stone which is mixed with some Black ditto; from the same place.

- 3170 Partly *Botryoidal*, partly *Tubuliform* Grey Manganesian Ore, coated with Black ditto; from Barauth.

c. c. The Regular External Figure.

a. Prisms.

- 3171 Grey Manganesian Ore crystallized in small, acicular, hexahedral Prisms, with Massive ditto which is mixed with much Lamellar Baroselenite and decomposed Porphyry; from Altenberg.
- 3172 Grey Manganesian Ore crystallized in the same manner, but somewhat smaller, and partly scopiformly accumulated, in Lamellar Baroselenite; from Eibenstock.
- 3173 Grey Manganesian Ore crystallized in very small, almost minute, similar Prisms, in Sparry Iron Ore mixed with a little Baroselenite; from Kamisdorf.

b. Tables.

- 3174 Grey Manganesian Ore crystallized in very small, Rectangular Tetrahedral Tables, which are Prismatically aggregated, with Black ditto in indurated Iron Ochre.
- 3175 Grey Manganesian Ore crystallized in very small, scopiformly accumulated, similar tables, upon compact Brown Iron Stone; from Kamisdorf.
- 3176 Grey Manganesian Ore crystallized in minute similar tables, upon Massive ditto which is mixed with much Iron Ochre; from the same place.
- 3177 Grey Manganesian Ore crystallized in minute similar tables, which give an overcast upon Botryoidal Black ditto mixed with much indurated Iron Ochre.
- 3178 Grey Manganesian Ore crystallized in extremely small, similar tables, which form a thin drusy Pellicle, upon Sparry Iron Ore which is mixed with much Iron Ochre and some Baroselenite.

c. Varieties

c. Varieties of the Fracture.

- 3179 *Very broad striated Grey Manganesian Ore, in and upon Black ditto; from Thuringia.*
- 3180 *Ditto, with a stellularly diverging broad striated fracture, upon Compact Brown Iron Stone; from Eibenstock.*
- 3181 *Moderately broad and scopiformly diverging, striated ditto; from Johangeorgenstadt.*
- 3182 *Moderately narrow and interwoven, striated ditto, in Lamellar Baroselenite; from Ilfeld.*
- 3183 *Narrow and scopiformly diverging, striated ditto, in Lamellar Baroselenite; from the same place.*
- 3184 *Very narrow striated ditto, upon a Quartz thoroughly penetrated with Manganese; from Ehrenstoc.*
- 3185 *Very narrow, and very short, striated Grey Manganesian Ore mixed with much Lamellar Baroselenite and decomposed Porphyry; from Altenberg.*
- 3186 *Grey Manganesian Ore of an actually minute foliated fracture, which passes into the following variety; from the Hartz.*

d. Varieties of the Distinct Concretions.

- 3187 *Two long splintery fragments of Grey Manganesian Ore, in which one may observe pretty distinctly columnar distinct concretions; from Ilfeld.*
- 3188 *Grey Manganesian Ore, of large granular distinct concretions; from Johangeorgenstadt.*
- 3189 *Ditto of coarse granular distinct concretions; from the same place.*
- 3190 *Ditto of partly coarse partly small granular distinct concretions; from the same place.*
- 3191 *Ditto of very small granular distinct concretions, in Lamellar Baroselenite; from Ilfeld.*
- 3192 *A piece of Grey Manganesian Ore, of very thick, and somewhat curved, Lamellar distinct concretions, mixed with some Baroselenite, upon indurated Iron Ochre, and thinly overlaid with Black Manganesian Ore; from Thuringia.*

2. BLACK MANGANESIAN ORE.

Kirwan. 2d Family, 2d Spec.

a. Varieties of the Colour.

- 3193 *Brownish Black* Manganesian Ore, mixed underneath with some Grey ditto; from Grosskamsdorf.
- 3194 *Bluish Black*, somewhat inclining to *Steel Grey* ditto, variegatedly tarnished on the surface; from Treves.

b. Varieties of the External Shape.

- 3195 *Tetrahedrally cellular* Black Manganesian Ore, with Arbustiform ditto underneath, but in general strewed over with Crystals of the foregoing species; from Kamsdorf.
- 3196 *Pectinated* ditto; from the same place.
- 3197 Ditto with *globular impressions* and much reniform ditto, upon Quartz; from Upper Lusatia.
- 3198 Ditto, *appearing as if fused*, with Arbustiform ditto, upon a Sparry Iron Stone very much mixed with Iron Ochre; from Köniz in Swartzenburg.
- 3199 *Botryoidal* Black Manganesian Ore, upon Compact Brown Iron Stone; from Kamsdorf.
- 3200 *Reniform* ditto, with a little superficial Red ditto; from Thuringia.

c. Varieties of the Fracture.

- 3201 Black Manganesian Ore of a tolerably *even* fracture; from the same place.
- 3202 Ditto, with an *imperfectly conchoidal* fracture; from the same place.

Rem. The former is glimmering, the latter slightly glistening.

3. RED MANGANESEAN ORE,

Kirwan, 4th Family 3d Spc.

a. Varieties of the External Shape.

b. b. The Common External Shape

- 3203 *Massive Red Manganese Ore of a very beautiful rose red colour, with disseminated Grey Copper Ore, and some adhering Brown Blende; from Kapnic in Transylvania.*

b. b. The Particular External Form,

- 3204 *Minute botryoidal ditto, with massive ditto upon Quartz, and an intermixed decomposed sort of aggregate Stone which seems to have been Porphyry; from Hungary.*
- 3205 *Rather spherically botryoidal Red Manganese Ore, upon massive ditto, which is mixed with a large quantity of Brown Blende; from Facebanya in Hungary.*

c. c. The Regular External Figure.

- 3206 *Red Manganese Ore crystallized in very small, globularly accumulated Lenses, upon Quartz which is mixed with massive ditto, and adhering decomposed Argillite; from Hungary.*
- 3207 *A groupe of very small pyramidally crystallized ditto, botryoidally accumulated and afterwards crystallized over with Calcareous Spar, upon a compound of Quartz, some Copper Pyrites, Brown Blende and a very little Nagaya Gold Ore; from Nagaya in Transylvania.*
- 3208 *Minutely, but similarly crystallized Red Manganese Ore, afterwards aggregated in imperfect small Pyramids, upon massive ditto, in which the minute foliated fracture is observable, upon Quartz with adhering Hornstone; from the same place.*

b. Varieties

b. Varieties of the remaining Characters.

- 3209 A piece of Red Manganefian Ore, in which one may observe moderately *thin* and *curved* *Lamellar* distinct concretions, as also the *Transition* into the following species, upon a compound of Quartz, with much Galena, Brown Blende, some White Manganefian Ore, a little Copper Pyrites, and with overlaying Black Manganefian Ore both above and below; from Transylvania.

4. WHITE MANGANESIAN ORE.

Kirwan, 1st Family, 2d Spec.

- 3210 *Very prominent reniform* White Manganefian Ore with a drusy superficies, upon massive Red ditto which is mixed with much Brown Blende, some Copper Pyrites and a little Galena, from the same place.

XV. MOLYBDÆNITE.

1. MOLYBDÆNA.

- 3211 A piece of Molybdæna of a *Lead Grey* colour, slightly inclining to *reddish*.
- 3212 *Massive* Molybdæna of a somewhat *darker lead grey* colour, in Quartz wherein crystallized Wolfram occurs; from Altenberg.
- 3213 *Coarsely disseminated* Molybdæna, with *Lamellar Baroselenite* and some crystallized Fluor Spar, in *Native Arsenic*; from Bohemia.
- 3214 *Minutely disseminated* Molybdæna in a green indurated Clay, in which some *Stanniferous Quartz* occurs; from Altenberg.

XVI. ARSENIC.

1. NATIVE ARSENIC.

*Kirwan, 1st Spec.**a. Varieties of the Colour.*

- 3215 A piece of massive Native Arsenic, in the recent fracture of an intermediate colour between *Tin White* and *Lead Grey*; from the Hartz.

Rem. In this the minute foliated fracture is observable,

b. Varieties of the External Shape.

- 3216 *Reniform* Native Arsenic, with impressions underneath and mixed with decayed Martial Pyrites, with some Fluor Spar Cubes on the surface; from Annaberg.
- 3217 *Minute reniform* Native Arsenic; from the same place.
- 3218 Native Arsenic, with *round impressions* in some places, *Amorphous* in others, with superficial Red Silver Ore underneath; from Annaberg.

c. Varieties of the distinct Concretions.

- 3219 *Very thick and curved Lamellar* Native Arsenic, with much intermixed Red Silver Ore and also Galena; from Freiberg.
- 3220 Native Arsenic of *thin and curved Lamellar* distinct concretions, with much crystallized Sparry Iron Ore and decayed Martial Pyrites; from Annaberg.

2. ARSENICAL

2. ARSENICAL PYRITES.

A. Common Arsenical Pyrites.

Kirwan 2d Spec.

a. Varieties of the Colour.

- 3221 *Perfect and fresh Tin White* Arsenical Pyrites, mixed with Hornstone; from Schneeberg.
- 3222 *A little darker Tin White* Arsenical Pyrites, mixed with much Copper Pyrites and Indurated Clay; from Altenberg.
- 3223 *A little inclining to Silver White* Arsenical Pyrites, with intermixed Siderocalcite; from Freiberg.
- 3224 *Strongly inclining to Silver White,* Arsenical Pyrites in Quartz; from the same place.
- 3225 *Variegatedly tarnished ditto,* with Copper Pyrites and Sparry Iron Ore Crystals, and some Brown Blende in Quartz; from the same place.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 3226 *Massive* Arsenical Pyrites, with some crystallized ditto and a little Fluor Spar in Quartz; from Freiberg.
- 3227 *Coarsely disseminated* Arsenical Pyrites, in a compound of Quartz, some Copper Pyrites and Black Blende; from the same place.
- 3228 *Partly coarsely, partly minutely disseminated* Arsenical Pyrites, in green Indurated Clay which is mixed with Quartz; from Altenberg.

b. b. The Regular External Figure.

- 3229 Arsenical Pyrites crystallized in Rhomboidal Tetrahedral

- hædral Prisms with very obtuse dihædral summits, with Quartz, upon decayed Gneiss which is traversed by some slips of Martial Pyrites; from Munzig.
- 3230 A groupe of similar Prismatic Crystals of Arsenical Pyrites, but with larger acuminate Planes, in Quartz which is mixed with Martial Pyrites and with adhering Gneiss; from the same place
- 3231 Arsenical Pyrites crystallized in the same manner, but the Prisms much lower in proportion to their breadth, upon Massive ditto which is mixed with much Siderocalcite; from the same place.
- 3232 Arsenical Pyrites crystallized in small similar Prisms, mixed with Brown Blende and some Quartz; from the same place.
- 3233 Arsenical Pyrites crystallized in smaller, similar Prisms, in Quartz; from Munzig.
- 3234 Arsenical Pyrites crystallized in partly very small, similar Prisms, upon Quartz which is mixed with Native Arsenic, much Martial Pyrites, some Galena and Brown Blende, with adhering decomposed Gneiss; from Freiberg.
- 3235 Arsenical Pyrites crystallized in very small similar Prisms, implanted upon and penetrating one another, in Quartz which is mixed with somewhat Ironshot Lithomarga; from Ehrenfriedersdorf.
- 3236 Arsenical Pyrites crystallized in still smaller, similar Prisms, upon Massive ditto intermixed with Quartz; from Freiberg.
- 3237 Arsenical Pyrites crystallized in still much smaller Prisms, in Massive ditto which is mixed with Quartz, with adhering Argillite; from Hohenstein in the Erzgebirge.

c. Varieties of the Fracture.

- 3238 Massive Arsenical Pyrites of a *fine-grained uneven* fracture, with some Martial Pyrites in Quartz; from Freiberg.

3239 Arsenica

- 3239 Arsenical Pyrites of a *small-grained uneven* fracture, with some Galena and much Black Blende in Ironshot Quartz; from Freiberg.
- 3240 Arsenical Pyrites whose fracture is intermediate between the *foliated* and *striated*, with a little Siderocalcite, upon bituminous Marlite, traversed by a narrow strip of Calcareous Spar; from Sangerhausen.

Rem. Both the variety itself and the compound are rare appearances.

d. Varieties of the distinct Concretions.

- 3241 Arsenical Pyrites of somewhat indistinctly *small* and *fine granular* distinct concretions, in a compound of Quartz, much Black Blende, a little Copper Pyrites and small Crystals of Arsenical Pyrites; from Freiberg.
- 3242 Common Arsenical Pyrites of partly *thick*, partly *thin*, *straight* and *interwoven* columnar distinct concretions; from Munzig.

B. Argentiferous Arsenical Pyrites.

Kirwan, 3d Spec.

a. Varieties of the Colour.

- 3243 *Tolerably light Silver White* Argentiferous Arsenical Pyrites, with common ditto, much Brown Blende, some Siderocalcite and Quartz; from Freiberg.
- 3244 Argentiferous Arsenical Pyrites of a colour more inclining to *Tin White*, in the same compound, to which Copper Pyrites is superadded, with adhering decomposed Gneiss; from the same place.
- 3245 Argentiferous Arsenical Pyrites of a somewhat *darker* colour, in Quartz; from Braunsdorf.

b. Varieties

b. Varieties of the External Shape.

- 3246 *Massive* Argentiferous Arsenical Pyrites, in a compound of Galena, Copper Pyrites, some common Arsenical Pyrites, Brown Blende and Quartz, with adhering Siderocalcite; from Freiberg.
- 3247 *Coarsely disseminated* Argentiferous Arsenical Pyrites in the same compound, but in which much Blende and very little Galena occur, without any Siderocalcite; from the same place.

c. Varieties of the Fracture.

- 3248 *Coarsely disseminated* Argentiferous Arsenical Pyrites with a *very fine-grained uneven* fracture, in Quartz which is mixed with much Brown Blende, and with much adhering decomposed Gneiss; from the same place.

d. Varieties of the distinct Concretions.

- 3249 *Coarsely disseminated* Argentiferous Arsenical Pyrites of *fine granular* distinct concretions, in Quartz; from Braunsdorf.
- 3250 *Coarsely disseminated* Argentiferous Arsenical Pyrites of *extremely fine granular* distinct concretions, in the same sort of Stone, with some inlaying Argillite; from the same place.

3. NATIVE CALX OF ARSENIC,

Kirwan, 4th Spec.

- 3251 Crystallized White Native Calx of Arsenic, with Grey ditto upon Hepatic Pyrites, which in parts is very much decayed; from Schmölniz in Upper Hungary.

Rem. The Crystals indeed are not quite distinct, but however they seem to be Octahedrons.

4. SULPHURATED ARSENIC.

Kirwan, 31b Spec.

A. Orpiment.

- 3252 Orpiment of a *Lemon Yellow* colour, upon and in Realgar; from Felsöbanya in Hungary.
- 3253 *Massive* Orpiment, whose colour strongly inclines to *Sulphur Yellow*; from the same place.
- 3254 Some fragments of Orpiment in which the *curved foliated* fracture, the *strong glistening Wax-like* internal Lustre, and the *Translucidity* is observable; from the same place.

B. Realgar.

a. Varieties of the Colour.

- 3255 *Very bright Aurora Red* Realgar, with some foliated Baroselenite upon Quartz; from Joachimstahl.
- 3256 *Scarlet Red* Realgar which inclines to *Crimson Red*, from Nagaya in Transylvania.

b. Varieties of the External Shape.

- 3257 *Massive* Realgar with some Orpiment, upon and in Quartz; from Felsöbanya in Upper Hungary.
- 3258 *Disseminated* Realgar in Ironshot Asfaltum; from Lorraine.
- 3059 Partly *disseminated*, partly *superficial* Realgar, upon Native Arsenic, with adhering Argillite; from Joachimstahl.
- 3260 Realgar of *coarse* and *small granular* distinct Concretions

tions, in which also the tolerably plain foliated fracture is very distinctly observable, upon Quartz wherein Martial Pyrites is finely disseminated; from Felsöbanya.

XVII. TUNGSTENITE.

1. TUNGSTEN.

Kirwan, 1st Fam. 1st Spec.

- 3261 A fragment of a greyish white Octohædral Crystal of Tungsten; from Schlakkenwald in Bohemia.

2. WOLFRAM.

Kirwan, 2nd Spec.

a. Varieties of the Colour.

- 3262 Perfectly brownish black Wolfram, here and there slightly tarnished with the blue colour of tempered Steel, with much Mica; from Altenberg.

b. Varieties of the External Shape.

a. a. The Common External Shape.

- 3263 Massive, as likewise coarsely disseminated Wolfram, with much Mica in Quartz; from the same place.

b. b. The Regular External Shape.

- 3264 A piece of a large broad Hexhædral Prism of Wolfram, acuminated at the extremity by four planes which are set on the lateral edges; from Zinwald.
- 3265 An Hexhædral Prism of middling size, but no longer quite perfect on the one side, of Wolfram, with a little overlaying Mica; from the same place.

c. Varieties

c. Varieties of the distinct Concretions.

- 3266 Wolfram of *very thick* and *tolerably straight lamellar* distinct concretions, with adhering, extremely large-grained Granite ; from Geier.

Rem. In this specimen also the plain foliated fracture is tolerably distinct.

- 3267 Wolfram of *moderately thin lamellar* distinct concretions, with some overlaying Quartz and Mica ; from the same place.

- 3268 Wolfram, of partly *very thin* and *curved lamellar* distinct concretions, with much adhering crystallized Mica on one side ; from Zinwald.

END OF THE SYSTEMATIC COLLECTION.

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